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Non-Gaussian noise is very frequently the dominant background interference in a wide variety of "communication" situations, where in some general sense it is desired to transmit information from one point in space and time to another. Recently, it has been shown that most such noise can be described by three canonical models: Class A noise, which is distinguished by its coherent, transientless passage through the linear front-end stages of typical receivers; Class B Noise, which is "impulsive" and produces nothing but transients in the receiver; and Class C interference, which is simply a linear combination of Class A and B components. These models are based directly on physical propagation principles, with an underlying Poissonian statistical structure. Typical examples in applications arise in both active and passive systems: (1) in sonar, in radar, in acoustical and electromagnetic (EM) telecommunications; (2) as a result of

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19. ABSTRACT

natural and man-made phenomena, e.g., lightning, ocean ambient noise, and biological mechanisms, automobile ignitions, electrical tools, and arctic ice noise.

This report presents extensive numerical results for Class A noise; these consist of (1) probability densities; (2) cumulative probability distributions; (3) and in particular, various special statistics associated with Class A noise, which are needed in the evaluation of general receiver performance, i.e., for optimum weak-signal detection and estimation, and for threshold performance comparisons generally. A concise description of all these quantities is included in the text.

In addition, various methods of carrying out the numerical evaluations are described in detail. Several alternative forms for the characteristic function of the normalized instantaneous amplitude have been derived, in terms of incomplete Gamma functions, and are suitable for large or small arguments. For the particular case of interest here, namely $\mu=0$, $\gamma=2$, a very advantageous form involving the tail of the complementary error function has been derived and employed to determine the performance parameters numerically. Tables and plots of the parameters, for a wide range of Gaussian factor Γ, overlap index A, and annular radii ratio α_0, are presented, along with programs which enable investigation of cases of further interest.

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Performance Parameters for Quasi-Canonical Class A Non-Gaussian Noise; Source Distribution Law $\mu = 0$, Propagation Law $\gamma = 2$

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Preface

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LIST OF SYMBOLS

μ	Source distribution law
γ	Propagation law, (2.24)
$\hat{\mu}$	Ratio of a priori probabilities, (2.19a)
EMI	Electromagnetic interference
ACI	Acoustical interference
α_0	Ratio of annular radii, (2.27)
$L^{(k)}$	Associated performance statistics
X	Instantaneous amplitude of receiver output
cf	Characteristic function
pdf	Probability density function
F_1	First-order cf
ξ	Argument of cf
σ_G^2	Intensity of additive Gaussian noise
A_A	Overlap index, (2.3)
H_1	Auxiliary function, (2.2)
$\hat{B}_0$	Received envelope of X(t)
θ	Set of random parameters
T_s	Time duration of a source emission
W_1	First order PDF of z_0 or X; (2.5) or (2.6)
APD	A posteriori probability distribution
$P_1(X)$	Exceedance distribution function of X, (2.7)
X_0	Threshold value
D(X)	Cumulative distribution of X, (2.9)
z	Normalized amplitude, (2.10)
Ω_{2A}	Intensity of non-Gaussian component, (2.11a)

Γ_A'	Intensity ratio, (2.11b)
λ	Argument of cf F_1
g^*	Structures of locally optimum detectors, (2.16)
B^*	Bias terms
ℓ_n	Likelihood quantities, (2.17)
Θ	Error function, (2.19c)
P_e	Probability of error, (2.19a)
P_D	Probability of correct detection, (2.19b)
α_F^*	False alarm probability
$L^{(2)}, L^{(4)}$	Associated Statistics, (2.21), (2.22), (2.23)
$\sigma_S(\lambda)$	Density in space variate λ, (2.25)
α	Auxiliary parameter, $(2-\mu)/\gamma$, (2.30b)
g, h, L	Auxiliary parameters, (3.3)
H_2	Normalized cf, (3.4)
A	Overlap index or average usage
Γ	Gaussian factor, (3.7)
p	A priori probability of a signal, (2.19a)
q	A priori probability of no signal, (2.19a); Auxiliary function, (3.13)
Φ	Cumulative distribution, (3.14)
γ, Γ	Incomplete Gamma functions, (3.21)
p(u)	pdf of instantaneous amplitude, (3.26)
Re, Im	Real and imaginary parts
f_a	Asymptotic cf, (3.40)
f_b	Remainder cf, (3.41)
p_b	pdf corresponding to cf f_b, (3.43)
$\tilde{p}_b$	Approximation to p_b
Δ	Sampling increment, (3.44)

PERFORMANCE PARAMETERS FOR QUASI-CANONICAL CLASS A NON-GAUSSIAN NOISE; SOURCE DISTRIBUTION LAW $\mu = 0$, PROPAGATION LAW $\gamma = 2$

1. INTRODUCTION

Most electromagnetic and acoustical interference (EMI and ACI) include highly non-Gaussian random noise components. Indeed, many EMI and ACI environments are dominated by such noise, which can highly degrade system performance unless suitable attention is paid to its deleterious effects. Receivers optimized against the usual Gaussian noise are usually badly matched to this other type of interference and can accordingly suffer serious reductions in performance. It is therefore clearly important to consider quantitatively non-Gaussian noise models and their impact on system performance, generally. For this, numerical results are ultimately required; providing such results, and new methods of obtaining them, is the main purpose of the present study.

To this end, in the last decade, a number of canonical models of non-Gaussian noise have been developed, by Middleton [1] - [5], which are both analytically tractable and derived from suitable physical foundations. By canonical, here, is meant having the analytic form of the probability distributions and associated statistics independent of the particular physical interference source under investigation. (The specific numerical values, of course, depend on the particular physical noise mechanism.) The two critical assumptions underlying these models are (1) that each interfering source emits independently of any other and (2) that the number of potentially

interfering sources is very large (i.e., mathematically infinite). The resulting distributions are then Poissonian (see section II of [4]). Because these models are based on generic physical considerations, their parameters are themselves physically derived and measurable, and are not simply ad hoc quantities to be determined from each particular application [3]. In any case, except in certain limiting situations, the resultant noise processes are highly non-Gaussian, often with rather structured, overlapping waveforms.

Three classes of EMI (and ACI) models are now distinguished fundamentally in terms of their temporal structures, as they impact upon a typical receiver. The basic classification is made in terms of three broad categories:

<u>Class A Interference</u>: This interference produces negligible transients in the (linear) front-end stages of a receiver. The interference has an essentially coherent temporal structure, even though its bandwidth may be considerably larger than that of the receiver. The controlling relation here is

$$T_I \, \Delta f_R \gg 1 \, , \tag{1.1}$$

where T_I = duration of a typical interfering signal, and Δf_R = effective receiver bandwidth.

<u>Class B Interference</u>: This noise is highly "impulsive," or incoherent vis-à-vis the receiver, and produces significant transients (unlike Class A interference). Here

$$T_I \, \Delta f_R \ll 1 \, , \tag{1.2}$$

and the transients overlap randomly.

<u>Class C Interference</u>: This is a (linear) combination of Class A and Class B components, which becomes primarily "impulsive" if the Class B component predominates; Equation (1.2) is the controlling one in such cases.

Figure 1.1 illustrates the various noise classes schematically in relation to a typical receiver's front-end stages, which consist usually of the aperture (antenna or array) and "RF" and "IF" elements. If the receiver is broadband vis-a-vis the incoming interference, then the latter is effectively Class A.

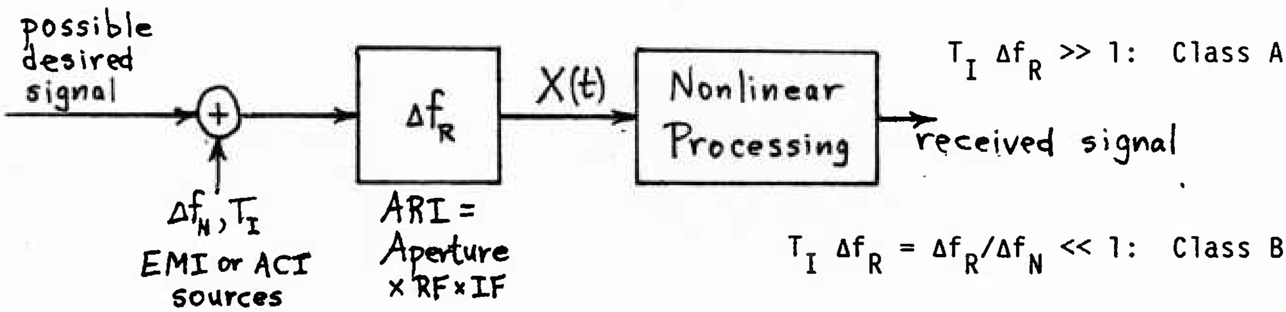

Figure 1.1. Schema of interference environment and a typical narrowband receiver.

Physical examples of Class A noise are, commonly, other unwanted communications in the same spectral region as that selected for a desired signal, various EM or acoustic emissions from machinery, power lines, etc., and some biological sources (whales, dolphins) in underwater acoustic situations. The grinding of ice plates in arctic ice fields is another example, as is reverberation in active sonar applications [15], [16]. Class B

interference is similarly produced, both by man-made and natural sources: atmospheric noise; e.g., lightning, automobile emissions, machinery are all EM examples, while shrimp and the microseisms in Arctic ice generate Class B noise in underwater acoustic régimes. Electric tools, motors, extra-terrestrial sources, provide further examples. In practice, both Gaussian and various non-Gaussian emissions appear together and are received as such, so that one properly must consider an (additive) mixture, including a Gaussian component. The latter is attributable to inherent receiver (e.g., thermal) noise and to possible external Gaussian sources, which represent the resultant of many roughly equivalent individual emissions.

Excellent agreement between experiment and theory has been established for the fundamental Class A and Class B cases, as is evident, for example, in Figs. (2.1) - (2.5) of [2]. In addition, the aforementioned canonical character of these models is demonstrated by the disparate nature of the physical sources themselves: ore-crushing machinery, fluorescent lights, power-line signals, ignition noise, atmospheric noise, etc. This canonical character stems from the underlying Poissonian statistics of the emission process, which of course is not restricted to any particular physical mechanism. In fact, except for those special situations which involve at most a small number of potentially emitting sources, the Class A and B models describe most practical interference, including the limiting Gaussian cases.

In general, quantitative analytic results have required the use of a variety of approximations. Only in important special cases are exact forms for the distributions, etc., possible. It is for this reason that suitable

numerical methods must be developed and applied, to give the desired numerical results needed in applications. This is the purpose of the present study, which extends and generalizes earlier work in this respect, cf. [3], [5] - [8].

Because tractable analytic results for the first-order probability density function (pdf) and various statistics related to it (e.g., $L^{(2)}$, $L^{(4)}$, etc., cf. Sec. 2 ff.) are obtainable, both exactly and approximately, performance of optimum and practical (suboptimum) receivers can be determined and compared [6]. This is explicitly the case in the critical, weak-signal régimes, where a fully canonical theory is possible. With the appropriate Class A, B, (or C) interference model, the canonical forms can then be specifically quantified, [6] - [8]. For further discussion of these non-Gaussian models and their applications, see also the tutorial reports [9], [10].

In the present study, only Class A distributions and selected statistics based on such distributions are considered. In particular, three types of Class A models are treated (see section III of [5]):

1. Strictly canonical Class A models: These correspond to the situations where the potentially interfering sources are (arbitrarily) distributed at equal distances from the receiver, i.e., arbitrarily on a circle with the receiver at the center (cf. B, Sec IV, [5]). Here exact analytic results can be obtained for the probability distributions, etc.

2. Approximately canonical Class A models: In these cases the sources are roughly equidistant from the receiver, in an annulus (or portions of an annulus) where α_0 (= inner radius/outer radius) = O(1/2); cf. Example 2, C, V of [5]. Exact (i.e., closed-form) analytic results for the pdf, etc., are not possible.

3. Quasi-canonical Class A models: Here α_0= O(0.1 or smaller); the range of sources is wide, from close to distant vis-à-vis the receiver in question. As in (2), exact (closed-form) analytic forms for the pdf and associated statistics are not possible.

Types 1 and 2 may be treated as special cases of the quasi-canonical model. This latter case is the subject of the present report, with calculations based on a specific EMI (or ACI) scenario, described in detail in Section 2. The present work considerably extends the numerical aspects of earlier investigations, [3], [5] - [8]. A principal purpose of this effort is to provide results useful in the quantitative prediction of receiver performance for the various forms of Class A noise, for typical interference scenarios.

Finally, the report is organized as follows: Section 2 provides a concise summary of the required analytic results: probability densities (pdfs) and distributions, detection performance measures and associated bounds, in the threshold signal régimes, including a specific EMI scenario; and various associated statistics ($L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$) derived from the pdf's, which are needed in performance evaluation. Section 3 is

devoted to numerical considerations and techniques used in the computations. Section 4 gives specific quasi-canonical densities and distributions, while Section 5 presents the associated statistics ($L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$) needed in the evaluation of performance. Section 6 completes the main text with a short recapitulation of the general results and conclusions. Various appendices and selected references complete the report.

2. SUMMARY OF ANALYTIC RESULTS

In this section we briefly summarize some of the principal analytic results whose numerical expressions we seek for the various applications noted above, in particular, for signal detection and estimation in the frequently encountered non-Gaussian EMI and ACI environments of the real world.

We consider first the characteristic functions (c.f.'s) and their corresponding probability distributions, chiefly for the instantaneous amplitude (X) of the received output of the (linear) front-end stages of a typical receiver, as illustrated by Fig. 1.1. This is followed by a very concise summary of measures of detector performance, in order to show how the "associated statistics," $L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$, based on the aforementioned pdf's, appear. The rôle of the "interference scenario" is then briefly noted, and the results concisely considered from the viewpoint of applications.

2.1. CHARACTERISTIC FUNCTIONS AND PROBABILITY DISTRIBUTIONS

For Class A noise with an additive Gaussian component, the first-order characteristic function of the instantaneous amplitude X(t), cf. Fig. 1.1, which is assumed to be a stationary process for the present treatment, is found to be [cf. (2.18), [5]]

$$F_1(i\xi|X)_{A+G} = \exp\left\{-\sigma_G^2\xi^2/2 - A_A + A_A\, H_1\,(i\xi)_A\right\}, \tag{2.1}$$

where

$$H_1(i\xi)_A = \left\langle \int_0^{z_0} dz\, J_0\left(\xi \hat{B}_0(z;\underset{\sim}{\theta})\right)\right\rangle_{\underset{\sim}{\theta};z_0,\underset{\sim}{\theta}'} \tag{2.2}$$

in which $\hat{B}_0$ is the typical received envelope of the narrowband output, X(t); $\underset{\sim}{\theta}$ = set of random parameters, including $z_0 \equiv T_s/\bar{T}_s$, where T_s is the duration of a typical source emission, and $z = t/\bar{T}_s$ is a normalized time. Also, we have

σ_G^2 = mean intensity of the additive Gaussian component at A, Fig. 1.1

A_A = "overlap index" = average number of emissions per second (from those sources which can emit) x (mean duration $\bar{T}_s$ of a typical emission). (2.3)

Equation (2.1) can be equivalently expressed, on expansion of the exponent, as

$$F_1(i\xi|X)_{A+G} = e^{-A_A} \sum_{m=0}^{\infty} \frac{A_A^m}{m!} e^{-\sigma_G^2 \xi^2/2} H_1(i\xi)_A^m \ . \tag{2.4}$$

The averages $\langle\ \rangle_{\underset{\sim}{\theta}}$ in (2.2) are explicitly

$$\langle\ \rangle_{\underset{\sim}{\theta}} = \int_0^{\infty} w_1(z_0)dz_0 \int_0^{\infty} w_1(\hat{B}_0|z_0)(\quad)\, d\hat{B}_0,\ \text{or} = \int_0^{\infty} dz_0 \int_{\underset{\sim}{\theta}'} w_1(\underset{\sim}{\theta}')(\quad)\, d\underset{\sim}{\theta}', \tag{2.5}$$

according to the implicit, or explicit, form of $\hat{B}_0$.

The associated probability density function (pdf) is found formally by Fourier inversion of (2.1) or (2.4), and is

$$w_1(X)_{A+G} = \int_{-\infty}^{\infty} e^{-i\xi X} F_1(i\xi|X)_{A+G} \frac{d\xi}{2\pi} = \frac{1}{\pi} \int_{0-}^{\infty} F_1(i\xi)_{A+G} \cos(\xi X)\, d\xi, \tag{2.6}$$

since X is a symmetrical zero-mean process ($\bar{X}=0$). The exceedance probability distribution, or APD as it is usually called in telecommunication applications ([1] - [10]), is defined by

$$P_1(X \geq X_0)_{A+G} \equiv \int_{X_0}^{\infty} w_1(X)_{A+G}\, dX = \frac{1}{2}\left[1 - \frac{2}{\pi} \int_{0-}^{\infty} \frac{\sin(\xi X_0)}{\xi} F_1(i\xi)_{A+G}\, d\xi\right], \tag{2.7}$$

and because of symmetry in $w_1(X)_{A+G}$, one has

$$P_1(|X| \geq |X_0|)_{A+G} = 2P_1(X \geq X_0)_{A+G,\ X_0 \geq 0} = 1 - \frac{2}{\pi} \int_{0-}^{\infty} \frac{\sin(\xi|X_0|)}{\xi} F_1(i\xi)_{A+G}\, d\xi \ . \tag{2.8}$$

[The distribution, $D(X_0)$, is defined, as usual, by

$$D(X_o) = \int_{-\infty}^{X_o} w_1(X)_{A+G}\, dX = 1 - P_1(X \geq X_o)_{A+G}\,.] \tag{2.9}$$

Let us now put the above in normalized form by writing

$$\xi = \lambda \Big/ \sqrt{\Omega_{2A}(1+\Gamma_A')} \quad ; \quad z = X \Big/ \sqrt{\Omega_{2A}(1+\Gamma_A')}\,, \tag{2.10}$$

where z = normalized instantaneous amplitude. Here we have

$$\Omega_{2A} = \tfrac{1}{2}A_A\langle \hat{B}_0^2\rangle = \text{mean intensity of the non-Gaussian component;} \tag{2.11a}$$

$$\Gamma_A' = \sigma_G^2/\Omega_{2A} = \text{(Gaussian/non-Gaussian) intensity ratio.} \tag{2.11b}$$

Then, writing

$$x = \lambda \Big/ \sqrt{A_A(1+\Gamma_A')/2}\,, \tag{2.12}$$

we obtain the corresponding normalized forms:

<u>Eq. (2-1)</u>: $$F_1(i\lambda|z)_{A+G} = \exp\left\{- A_A + A_A\, H_1\,(x^2)_A - \frac{\Gamma_A'}{1+\Gamma_A'}\,\lambda^2/2\right\}, \tag{2.13}$$

with

$$H_1(x^2) = \exp\left(-\lambda^2\big/\left(2A_A(1+\Gamma_A')\right)\right) = e^{-x^2/4}\ , \text{ cf. (5.1), [5];} \tag{2.13a}$$

and

Eq. (2.4): $$F_1(i\lambda|z)_{A+G} = e^{-A_A} \sum_{m=0}^{\infty} \frac{A_A^m}{m!} H_1(x^2(\lambda))_A^m \,. \tag{2.13b}$$

The associated pdf and APD are now, for

Eq. (2.6): $$w_1(z)_{A+G} = \int_{-\infty}^{\infty} e^{-i\lambda z} F_1(ix|z)_{A+G} \frac{d\lambda}{2\pi} = \frac{1}{\pi} \int_0^{\infty} \cos(\lambda z)\, F_1(i\lambda|z)_{A+G}\, d\lambda, \tag{2.14}$$

and for

Eq. (2.8): $$P_1(|z| \geq |z_0|)_{A+G} = 2P_1(z \geq z_0)\Big|_{z_0 \geq 0} = 1 - \frac{2}{\pi} \int_{0-}^{\infty} \frac{\sin(\lambda|z_0|)}{\lambda} F_1(i\lambda|z)_{A+G}\, d\lambda \,. \tag{2.15}$$

It is these expressions, (2.13) - (2.15), which are used subsequently in Sec. 3, as the basis of the numerical calculations. [For a detailed discussion and development of the above relations, see Sec. 2, [4], and the references therein.]

2.2. DETECTION PERFORMANCE RESULTS AND THE ASSOCIATED STATISTICS $L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$

In the evaluation of receiver performance, for example weak-signal or threshold detectors, certain important statistics associated with the pdf $w_1(z)_{A+G}$, namely $L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$ defined below, are required. [The same is true if the interference happens to be Class B or Class C noise; cf. Sec. 1, above, where then $w_1(z)_{B+G}$, or $w_1(z)_{C+G}$, is needed. In any case, the threshold theory is canonical, i.e., its form is independent of the particular $w_1(z)$ involved, as we have already noted (Sec. 1, and [6]).]

Moreover, the detection algorithms themselves depend on these associated statistics, as well as on the form of $w_1(z)$. For example, (cf. Sec. II A, [6]), we have the following LOBD (= Locally Optimum Bayes Detector) algorithms, g^*, whose structure depends on the pdf, $w_1(z)$, and on the mode of receiving the desired signal, viz:

<u>Coherent Detection</u>: $$g_N^*(\underset{\sim}{z})_{coh} = B_{coh}^* - \sum_{n=1}^{N} \langle\Theta_n\rangle \ell_n ; \begin{cases} \Theta_n = a_{on} s_n \\ \Theta_n = \Theta(t_n) \end{cases}, \text{ etc.} \tag{2.16a}$$

<u>Incoherent Detection</u>: $$g_N^*(\underset{\sim}{z})_{inc} = B_{inc}^* + \frac{1}{2} \sum_{n,n'}^{N} \left(\ell_n \ell_{n'} + \ell_n' \delta_{nn'}\right) \langle\Theta_n \Theta_{n'}\rangle , \tag{2.16b}$$

where Θ_n is an input signal-to-noise ratio (a_{on}) times a normalized waveform (s_n) in the usual way, cf. Eqs. (2.2a) et seq. [6]. The quantities B^* are bias terms, which depend on sample size N (= 1,...n,...,N), and Θ, but are independent of the input data $\underset{\sim}{z} = (z_1,\ldots,z_n)$, while

$$\ell_n \equiv \frac{d}{dz} \log w_1(z) \Big|_{z=z_n} ; \ell_n' = \frac{d\ell}{dz}\Big|_{z_n} , \tag{2.17}$$

obviously are functionals of the noise pdf $w_1(z)$. The biases, B^*, are found to be expressible in terms of $\text{var}_{H_o}(g_N^*)$ by the relation

$$B_N^* = -\frac{1}{2} \text{var}_{H_o}(g_N^*) = -\frac{1}{2} \sigma_{oN}^{*2} , \tag{2.18}$$

where

$$\text{var}_{H_o}(g_N^*) = \langle (g_N^*)^2 \rangle_{H_o} - \langle g_N^* \rangle_{H_o}^2 \equiv \sigma_{oN}^{*2} , \text{ and } \langle\ \rangle_{H_o} = \int_{-\infty}^{\infty} w_1(x)(\ )dx;$$

and H_0 = "noise alone" state, showing the additional functional role of the noise pdf $w_1(x)$.

In the threshold detection cases, the measures of performance are given by the associated probabilities of error, or correct detection, which here have the specific forms [cf. (4.3), (4.4) of [6]]:

$$P_e^* \simeq \frac{1}{2}\left\{1 - \Theta\left(\frac{\sigma_{oN}^*}{2\sqrt{2}}\right)\right\}, \text{ (symmetric channel, } \underset{\hat{\mu}=p/q}{\hat{\mu}=1}\text{: } p=q=1/2\text{);} \tag{2.19a}$$

$$P_D^* \simeq \frac{1}{4}\left\{1 + \Theta\left(\frac{\sigma_{oN}^*}{\sqrt{2}} - \Theta^{-1}\,(1-2\alpha_F^*)\right)\right\}, \tag{2.19b}$$

where Θ^{-1} is the inverse error function to

$$\Theta(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2}\, dt\ . \tag{2.19c}$$

Here α_F^* is the (conditional) false alarm probability. The decision error probability P_e^* of equation (2.19a) is appropriate to the so-called Ideal Observer, a criterion useful in telecommunication applications, while Eq. (2.19b) is more suited to radar or sonar situations, where now P_D^* denotes the probability of correctly deciding the presence of a desired signal (or target).

Evaluation of σ^*_{oN} [cf. [6], [7] in particular] shows that

$$\sigma^{*2}_{oN\text{-coh.}} = 2a^{*2}_{o\text{-min-coh}} NL^{(2)} \,, \tag{2.20a}$$

$$\sigma^{*2}_{oN\text{-inc}} = 2\left(a^{*2}_{o\text{-min-inc}}\right)^2 \frac{NL^{(4)}}{8} \left[1 + \frac{2L^{(2)^2}}{L^{(4)}} \left(Q_N - 1\right)\right] \,, \tag{2.20b}$$

where $a^{*2}_{o\text{-min}}$ is the associated minimum detectable signal appropriate to coherent and incoherent observation, respectively. [The latter is required when signal epoch is not known at the receiver (cf. Sec. 1, [6]).] Specifically, the aforementioned associated statistics $L^{(2)}$ and $L^{(4)}$ are defined here by

$$L^{(2)} \equiv \int_{-\infty}^{\infty} \left(\frac{w_1'}{w_1}\right)^2 w_1(x)\, dx = \left\langle \ell^2 \right\rangle_{H_o} \,, \tag{2.21}$$

$$L^{(4)} \equiv \int_{-\infty}^{\infty} \left(\frac{w_1''}{w_1}\right)^2 w_1(x)\, dx = \left\langle (\ell' + \ell^2)^2 \right\rangle_{H_o} \,, \tag{2.22}$$

showing their functional dependence on the basic first-order pdf, $w_1(z)$, of the noise, which in our present numerical and analytic treatment belongs to Class A, specifically, and includes an (additive) Gaussian component.

Two additional statistics, $L^{(2,2)}$ and $L^{(6)}$, are also of interest, because they are needed in setting effective bounds on the applicability of the threshold algorithms noted above, namely (2.16a,b), and in their

performance, through (2.19 a,b).* The point is that the above relations (2.19), (2.20) are no longer optimum (or correct) when a_{o-min}^{*2} becomes too large: these threshold optimum systems degrade, more or less gracefully, into suboptimum performance as the input signal level becomes larger, and their analytic descriptions are no longer accurate. Other, no longer canonical forms, must be sought, to describe performance at these stronger signal levels, [14]. Specifically, the associated statistics in question are defined by

$$L^{(2,2)} \equiv \int_{-\infty}^{\infty} \left(\frac{w_1'}{w_1}\right)^2 \frac{w_1''}{w_1} \, w_1 \, dx \ ; \ L^{(6)} \equiv \int_{-\infty}^{\infty} \left(\frac{w_1''}{w_1}\right)^3 w_1 \, dx \ . \tag{2.23}$$

These are discussed further in Sec. 3.4 following, and are presented numerically in Sec. 5 and Appendix A.6.

2.3. EMI AND ACI SCENARIOS

The EMI or ACI scenario is defined as the collection of parameters defining the associated (first-order) pdf of the noise in question, and their derivation and/or definition on the basis of physically possible observation; cf. [4], and Sec. 5, B, [5].

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*This question of bounds is discussed more fully in [6], Eqs. (2.6) et seq., and in [8], Sec. 6.2, esp. Sec. 6.4, I, pp. 102-107, and Eqs. (6.69), (6.70), et seq. for explicit relations involving $L^{(2,2)}$ and $L^{(6)}$.

For example, for our Class A models above, Sec. 2.1, we have typically

$$\hat{B}_0(z)_A = aG_0(z|\emptyset)/\lambda^{\gamma} \;, \; \gamma>0 \;, \tag{2.24}$$

where $\lambda(= R/c)$ is a time, R = distance from source to receiver, c = speed of propagation, and γ is a propagation constant. The quantity G_0 involves the waveform of the received emission after it has passed through the ARI stages of the receiver, cf. Fig. 1.1, and the beam patterns associated with both the receiver and the emitting source. Here a is a (dimensionless) amplitude factor whose statistics govern the possible (slow or rapid) fading of the typically received emission. [See Eq. (3.13) et seq. of [4]].

The various interfering sources are distributed in space, with some density $\sigma_S(\underset{\sim}{\lambda})$, say, typically represented by $\sigma_S(\underset{\sim}{\lambda}) = \sigma_{oS}(\lambda)\, \sigma_S(\emptyset)/\lambda^{\mu}$ in the plane, for example. Thus, the pdf of source location is given by

$$w_1(\underset{\sim}{\lambda}) = B_{\mu}\, \lambda^{1-\mu}\, w_1(\emptyset) \quad ; \quad B_{\mu} = \frac{2-\mu}{\lambda_1^{2-\mu}-\lambda_0^{2-\mu}} \quad ; \quad 0<\lambda_0\leq\lambda_1 \;, \tag{2.25}$$

cf. Eq. (5.14) - (5.15d) of [4]. Moreover, we readily show that now

$$<1/\lambda^{2\gamma}>_{\lambda} \equiv C^{(2)}_{\mu,\gamma} = \frac{2-\mu}{2\gamma+\mu-2}\; \frac{1-\alpha_0^{2\gamma+\mu-2}}{1-\alpha_0^{2-\mu}}\; \alpha_0^{\;2-2\gamma-\mu}\, \lambda_1^{-2\gamma} \;, \; (\mu,\gamma\geq 0), \tag{2.26}$$

where the ratio of annuli λ_0, λ_1, is

$$0 \leq \alpha_0 \equiv \lambda_0/\lambda_1 \leq 1 \;. \tag{2.27}$$

We can use these results to show directly that

$$\Omega_{2A} = A_A\langle \hat{B}_0^2\rangle/2 = \tfrac{1}{2}A_A\langle G_0^2\rangle\, \overline{a^2}\;\; C^{(2)}_{\mu,\gamma} \tag{2.28}$$

which, with (2.11b), gives us Γ'_A at once in terms of the constituent physical observables of the interference scenario, viz:

$$\Gamma'_A = \sigma_G^2/\Omega_{2A} = 2\,\sigma_G^2\Big/A_A\langle G_0^2\rangle\,\overline{a^2}\;\; C^{(2)}_{\mu,\gamma} \tag{2.29}$$

here. From such relations we can calculate the parameters of the pdf's, as well as infer them by direct measurement of the APD's, as was done originally [2], [3], [9].

Finally, by direct expansion of $H_1(x^2)_A$ in (2.13a), using (2.25) and the further realistic assumption that a is Rayleigh-distributed, with G_0 essentially representing a uniform distribution of beam patterns, we obtain [cf. Eqs. (6.3a), (6.4) of [4]] the following expressions for H_{1A}:

$$H_1(x^2)_{A-I} = e^{-x^2\langle 1/\lambda^{2\gamma}\rangle/4\langle C^{(2)}_{\mu,\gamma}\rangle\lambda} \tag{2.30a}$$

$$= \frac{\alpha}{1-\alpha_0^{2-\mu}}\int_0^{\alpha_0^{-\gamma}} e^{-u^2b^2(x)}\,\frac{du}{u^{1+\alpha}}\;\;;\;\; \alpha = \frac{2-\mu}{\gamma}\;;\;\alpha_0=\lambda_0/\lambda_1\;, \tag{2.30b}$$

with (Eq. (6.4a), [4]):

$$b^2(x) = x^2/4x_1^{2\gamma}\, C^{(2)}_{\mu,\gamma}\;. \tag{2.30c}$$

Equations (2.30) are the relations which are explored analytically, and then numerically, in Sec. 3 et seq.

2.4. SUMMARY REMARKS

The brief preceding sections are intended to provide reference points to the reader, whereby he can, as needed, return to the physical and technological origins and applications of these important Class A models. Details of models and derivations are provided in the references cited, in particular [4], [6].

We have attempted to show, explicitly, how the basic pdf $w_1(z)$ appears in the applied results (for detection, etc.), and from $w_1(z)$, how various statistics associated with it, viz. ℓ, ℓ', $L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$, arise and are needed in various applications. Because of the many physical parameters involved, we have limited our numerical results to a selected scenario which has wide application, although many others (for example, through the many different choices of the propagation and distribution parameters (γ, μ)) may appropriately be made. In any case, the methods are canonical, as are the analytic forms, and with the included programs, many other scenarios can be directly evaluated numerically.

3. NUMERICAL CONSIDERATIONS

Evaluation of the performance parameters for quasi-canonical class A non-Gaussian noise constitutes a significant computational problem. First of all, the characteristic function of the normalized instantaneous amplitude is given by a nonlinear (exponential) transformation of an integral that is not expressible in simple closed form. In fact, for the general case of arbitrary source distribution law μ and propagation law γ, the best form for the integral appears to be the difference of two incomplete Gamma functions. Secondly, the corresponding probability density function (and its derivatives) of the amplitude can not be evaluated in closed form, but must be accomplished numerically by means of Fast Fourier Transforms (FFT's). Finally, the performance parameters themselves, which involve infinite integrals of ratios of probability density functions and various derivatives, must also be done numerically. The control of aliasing, truncation error, and round-off error in this sequence of numerical integrations is of paramount importance and requires careful, accurate function routines and large-size FFT's.

For the particular case of interest here, namely $\mu=0$, $\gamma=2$, a significant reduction of effort and error is possible when the original integral in the characteristic function is written in terms of the complementary error function, for which very accurate routines already exist. In particular, a difference of error functions is required, but both tend to zero sufficiently fast for large arguments that accuracy is retained for all arguments of interest.

3.1. CHARACTERISTIC FUNCTIONS

The process of interest here is the quasi-canonical Class A noise model under case I, Rayleigh fading. Then [5], Eq. (6.4) yields the exact expression for the characteristic function

$$H_1(x^2)_{A-I} = \frac{g}{\gamma(1-\alpha_o^g)} \int_1^L du\ u^{-1-g/\gamma} \exp(-b^2u^2) , \tag{3.1}$$

where the fundamental parameters are

$$\begin{aligned} \mu &= \text{source distribution law,} \\ \gamma &= \text{propagation law,} \\ \alpha_o &= \text{ratio of annular radii} \\ &= \lambda_o/\lambda_1 = \text{inner radius/outer radius,} \end{aligned} \tag{3.2}$$

and auxiliary parameters are defined as

$$g = 2-\mu,\ h = 2-\mu-2\gamma,\ L = \alpha_o^{-\gamma} ,$$

$$b^2 = x^2 \frac{h}{4g} \frac{1-\alpha_o^g}{1-\alpha_o^h} \equiv x^2 c_1 . \tag{3.3}$$

We will consider the normalized random variable with characteristic function

$$H_2(\xi) = H_1(c^2\xi^2)_{A-I} = \frac{g}{\gamma(1-\alpha_o^g)} \int_1^L du\ u^{-1-g/\gamma} \exp(-\xi^2c_3u^2) , \tag{3.4}$$

where the normalization constant is ([5], Eq. (4.5c)):

$$c^2 = \frac{2}{A(1+\Gamma)} , \tag{3.5}$$

and we have defined, using (3.3),

$$c_3 = c^2 c_1 = \frac{h}{2g} \frac{1-\alpha_o^g}{1-\alpha_o^h} \frac{1}{A(1+\Gamma)} . \tag{3.6}$$

The two additional fundamental parameters introduced here are (with an abbreviated notation)

A = overlap index or "average usage",

Γ = Gaussian factor = Gaussian power/non-Gaussian power = σ_G^2/Ω_{2A}, (3.7)

and $\Omega_{2A} = A\langle\hat{B}_o^2\rangle/2$,

where $\langle\hat{B}_o^2\rangle$ is the mean-square envelope of the output of the (linear) front-end stages of the receiver, cf. [11], Eq. (2.11a,b).

The characteristic function for the normalized instantaneous amplitude follows from [5], Eq. (2.19), as

$$F_2(\xi) = \exp\left[-A+A\ H_2(\xi) - \frac{\Gamma}{1+\Gamma}\frac{\xi^2}{2}\right], \tag{3.8}$$

where $H_2(\xi)$ is given above in (3.4). There is a total of 5 fundamental parameters in this general quasi-canonical case, listed in (3.2) and (3.7). The specific numerical results presented in this report will be confined to the case $\mu = 0$, $\gamma = 2$, thereby leaving the three parameters α_o, A, Γ to be investigated in (3.8) and (3.4). However, before embarking on these numerical results, we present a number of special cases and useful forms for the

quantities H_2 and F_2 encountered above. These also serve as checks on the numerical procedures that will be developed.

Finally, we note, as shown in appendix A.1, that the characteristic function in (3.8) behaves according to

$$F_2(\xi) \sim 1-\xi^2/2 \quad \text{as } \xi \to 0 \tag{3.9}$$

for all μ, γ, α_0, Γ, A (>0). Thus, the normalized instantaneous amplitude has mean zero and variance one.

3.2 SIMPLIFICATION OF $H_2(\xi)$ FOR $\mu = 2-\gamma$; (α=1)

When $\mu = 2-\gamma$, then (3.3) yields $g = \gamma$, $h = -\gamma$, while (3.4) becomes

$$H_2(\xi) = \frac{1}{1-1/L} \int_1^L du\, u^{-2} \exp(-\xi^2 c_3\, u^2) \ , \tag{3.10}$$

with

$$c_3 = \frac{c^2}{4L} \tag{3.11}$$

from (3.5) and (3.6). This case corresponds to $\alpha = 1$ in [5], Eq. (6.4). Integrating (3.10) by parts, we obtain

$$H_2(\xi) = \frac{1}{1-1/L}\left\{q\left(\frac{c\xi}{\sqrt{2L}}\right) - \frac{1}{L}\, q\left(\sqrt{\frac{L}{2}}\, c\xi\right)\right\} \qquad \text{for } \mu = 2-\gamma \ , \tag{3.12}$$

where the auxiliary function q is

$$q(u) = \exp(-u^2/2) - \sqrt{2\pi}\, u\, \Phi(-u) \ , \tag{3.13}$$

and Φ is the cumulative distribution function of a normalized Gaussian random variable:

$$\Phi(u) = \int_{-\infty}^{u} dv\ (2\pi)^{-1/2} \exp(-v^2/2)\ . \tag{3.14}$$

Equation (3.12) is a very convenient result for the numerical evaluation of H_2 and F_2, since accurate programs exist for the function Φ. The quantity L is given in (3.3) as $\alpha_0^{-\gamma}$. The result in (3.12) does not presume that $\gamma = 2$, but is more general. In the special case that $\gamma = 2$, also, then $L = \alpha_0^{-2}$, and (3.12) simplifies further, by use of (3.5), to

$$H_2(\xi) = \frac{1}{1-\alpha_0^2}\left\{q\left(\frac{\alpha_0\,\xi}{\sqrt{A(1+\Gamma)}}\right) - \alpha_0^2\ q\left(\frac{\xi}{\alpha_0\sqrt{A(1+\Gamma)}}\right)\right\} \text{ for } \mu = 0,\ \gamma = 2. \tag{3.15}$$

This latter result, along with (3.13), (3.14), and (3.8), constitutes the basis of the numerical procedure employed here. Since the auxiliary function q in (3.13) also satisfies

$$q(u) = u\int_{u}^{+\infty} dt\ t^{-2} \exp(-t^2/2) \sim u^{-2} \exp(-u^2/2)\left[1 - \frac{3}{u^2} + \frac{15}{u^4} - \ldots\right] \text{ as } u \to +\infty, \tag{3.16}$$

the form (3.15) for H_2 retains accuracy for large ξ as well as small, despite the difference required in (3.15).

3.3 ALTERNATIVE FORMS FOR H_2

We return to the general case of arbitrary μ and γ, and try to get more-advantageous forms for the fundamental quantity H_2, as given by the integral in (3.4) for the general quasi-canonical model.

If we repeatedly integrate by parts on (3.4), letting $U = \exp(-\xi^2 c_3 u^2)$ every time, we get

$$H_2(\xi) = \frac{1}{1-\alpha_0^g} \sum_{n=0}^{+\infty} \frac{(c_3 \xi^2)^n}{\left(1-\frac{g}{2\gamma}\right)_n} \left[\exp(-c_3\xi^2) - L^{2n}\,\alpha_0^g \exp(-L^2 c_3 \xi^2)\right] , \quad (3.17)$$

provided that $g/(2\gamma) \neq n+1$ for $n \geq 0$. The $n = 0$ term in this series is equivalent to the top line of [5], Eq. (6.5). Recursion could be used to evaluate this form efficiently, except for large ξ, where loss of significance can occur, as shown below.

A closed form for (3.17) in terms of confluent hypergeometric functions is given by

$$H_2(\xi) = \frac{1}{1-\alpha_0^g}\left[\exp(-c_3\xi^2)\ {}_1F_1(1;c_0;c_3\xi^2) - \alpha_0^g \exp(-L^2 c_3\xi^2)\ {}_1F_1(1;c_0;L^2 c_3 \xi^2)\right] , \quad (3.18)$$

where

$$c_0 = 1 - \frac{g}{2\gamma} = 1 - \frac{2-\mu}{2\gamma} . \quad (3.19)$$

However, this is not a useful form for large ξ; namely, since

$$\exp(-x)\ {}_1F_1(1;c_0;x) = {}_1F_1(c_0-1;c_0;-x) \sim \Gamma(c_0)\ x^{1-c_0} \quad \text{as} \quad x \to +\infty, \quad (3.20)$$

from [11], Eq. (A.1.16), then each of the two terms in (3.18) behaves as $\xi^{(2-\mu)/\gamma}$ as $\xi \to +\infty$. But since $\mu < 2$ and $\gamma > 0$, this means that each term in (3.18) tends separately to infinity. Yet the left-hand side of (3.18), namely $H_2(\xi)$, tends to zero exponentially with ξ, as seen from the definition (3.4). Thus, (3.18) cannot be used for large ξ without significant loss of accuracy. This holds for general values of μ, γ, as well as for the particular

case of numerical interest here, namely $\mu = 0$, $\gamma = 2$, for which the growth in (3.18) is linear in ξ for large ξ. This same problem arises in [5], Eqs. (6.5) and (6.12), although in different notation.

Some useful forms can be obtained by recourse to the incomplete Gamma function; we have, from [12], Eqs. (6.5.2) and (6.5.3), the two forms

$$\gamma(a,x) = \int_0^x dt\, e^{-t}\, t^{a-1} \qquad \text{for } a > 0,$$

$$\Gamma(a,x) = \int_x^{+\infty} dt\, e^{-t}\, t^{a-1} \qquad \text{for all } a. \tag{3.21}$$

By letting $t = \xi^2 c_3\, u^2$ in (3.4), a variety of results for $H_2(\xi)$ can be obtained. Let

$$c_4 = \frac{g}{2\gamma} = \frac{2-\mu}{2\gamma}, \qquad c_5 = \frac{c_4}{1-\alpha_o^g}\, c_3^{\,c_4}. \tag{3.22}$$

Then (3.4) and (3.21) yield the equivalent forms

$$\begin{aligned} H_2(\xi) &= c_5 \xi^{2c_4} \left[\Gamma(-c_4, c_3\xi^2) - \Gamma(-c_4, c_3L^2\xi^2)\right] \\ &= c_5 \xi^{2c_4} \left[\gamma(-c_4, c_3L^2\xi^2) - \gamma(-c_4, c_3\xi^2)\right] \\ &= c_5 \xi^{2c_4} \left[\Gamma(-c_4) - \gamma(-c_4, c_3\xi^2) - \Gamma(-c_4, c_3L^2\xi^2)\right] \\ &= c_5 \xi^{2c_4} \left[\Gamma(-c_4, c_3\xi^2) + \gamma(-c_4, c_3L^2\xi^2) - \Gamma(-c_4)\right]. \end{aligned} \tag{3.23}$$

The first form in (3.23) is particularly suitable when both $c_3\xi^2$ and $c_3L^2\xi^2$ are large, since

$$\Gamma(a,x) \sim x^{a-1}\, e^{-x} \sum_{n=0}^{+\infty} \frac{(1-a)_n}{(-x)^n} \quad \text{as } x \to +\infty; \tag{3.24}$$

that is, both terms decay exponentially with ξ^2. The second form is useful for both $c_3\xi^2$ and $c_3L^2\xi^2$ small. The third form is favored for small $c_3\xi^2$ and large $c_3L^2\xi^2$, while the fourth form is not useful in our application, since we have $L \geq 1$.

Actually, since $\gamma(a,x)$ is not defined for $a \leq 0$, the forms involving γ in (3.23) must be modified somewhat. Integrating (3.4) once by parts, we obtain, for example, for the second form,

$$H_2(\xi) = \frac{1}{1-\alpha_o^g}\Big[\exp(-c_3\xi^2) - \alpha_o^g \exp(-c_3L^2\xi^2) +$$

$$+ (c_3\xi^2)^{c_4}\left\{\gamma(1-c_4,c_3\xi^2) - \gamma(1-c_4,c_3L^2\xi^2)\right\}\Big], \tag{3.25}$$

which is valid for $c_4 < 1$, i.e., $\gamma+\mu/2>1$. In the above, use was made of (3.3) and (3.22). This latter form is equivalent to [5], Eq. (6.5). The results in (3.23) and (3.25) can be used for the numerical calculation of H_2 and F_2 in any future investigation, where μ and γ are general.

3.4 PERFORMANCE PARAMETERS

The four performance parameters of interest here are defined in terms of the probability density function of the normalized instantaneous amplitude, with characteristic function F_2 given by (3.8). Specifically,

$$p(u) = \frac{1}{2\pi}\int_{-\infty}^{+\infty} d\xi \exp(-iu\xi)\, F_2(\xi). \tag{3.26}$$

The performance parameters are

$$L^{(2)} = \int_{-\infty}^{+\infty} du \, \frac{[p'(u)]^2}{p(u)} = 2 \int_0^{+\infty} du \, \frac{[p'(u)]^2}{p(u)} \; ,$$

$$L^{(4)} = 2 \int_0^{+\infty} du \, \frac{[p''(u)]^2}{p(u)} \; ,$$

$$L^{(6)} = 2 \int_0^{+\infty} du \, \frac{[p''(u)]^3}{[p(u)]^2} \; ,$$

$$L^{(2,2)} = 2 \int_0^{+\infty} du \, \frac{[p'(u)]^2 \, p''(u)}{[p(u)]^2} \; , \tag{3.27}$$

where a prime denotes a derivative with respect to the argument. Use has been made of the evenness of probability density function p; see (3.8) and (3.4), where the characteristic function F_2 is obviously even.

Performance parameters $L^{(2)}$ and $L^{(4)}$ are obviously positive from their definitions, and an alternative form for $L^{(2,2)}$ below will also show this quantity to be positive. However, $L^{(6)}$ can go negative, depending on the particular values of the fundamental parameters μ, γ, α_0, A, Γ.

3.5 ALTERNATIVE FORMS FOR PERFORMANCE PARAMETERS

Consider the integral

$$I_n \equiv \int_{-\infty}^{+\infty} du \; p''(u) \, [p'(u)]^n \, g\{p(u)\} \; , \tag{3.28}$$

where g is an arbitrary differentiable nonlinear transformation. Integration by parts yields

$$I_n = -\frac{1}{n+1} \int_{-\infty}^{+\infty} du \, [p'(u)]^{n+2} \, g'\{p(u)\}$$

$$\text{if} \quad [p'(u)]^{n+1} \, g\{p(u)\} \to 0 \text{ as } u \to \pm\infty. \tag{3.29}$$

If we let n=0 and $g\{p\} = -\ln\{p\}$ in (3.28), comparison with (3.27) immediately yields

$$L^{(2)} = -2 \int_0^{+\infty} du \, p''(u) \ln\{p(u)\} \quad \text{if} \quad p' \ln\{p\} \to 0. \tag{3.30}$$

Alternatively, if we let n=2 and $g\{p\} = 1/p^2$ in (3.28), comparison with (3.27) yields

$$L^{(2,2)} = \frac{4}{3} \int_0^{+\infty} du \, \frac{[p'(u)]^4}{[p(u)]^3} \quad \text{if} \quad \frac{[p'(u)]^3}{[p(u)]^2} \to 0 \quad \text{as } u \to \pm\infty. \tag{3.31}$$

This form for $L^{(2,2)}$ is obviously positive. Also, whereas (3.27) requires evaluation of $p''(u)$, the form (3.31) does not. Equations (3.30) and (3.31) can be used as numerical checks on evaluation of the performance parameters via (3.27), and have been used here for just this purpose.

If we take n=1 and $g\{p\} = 1/p$ in (3.28) and (3.29), we obtain the result

$$\int_{-\infty}^{+\infty} du \, \frac{p''(u)p'(u)}{p(u)} = \frac{1}{2} \int_{-\infty}^{+\infty} du \, \frac{[p'(u)]^3}{[p(u)]^2} \, . \tag{3.32}$$

This does not correspond to any of the performance parameters of interest here; however, it may prove useful for the study of other parameters.

A statement more general than (3.28) and (3.29) is possible: namely, for f and g arbitrary differentiable nonlinear transformations, integration by parts yields

$$\int_{-\infty}^{+\infty} du\ p''(u)\ f'\{p'(u)\}\, g\{p(u)\} = -\int_{-\infty}^{+\infty} du\ p'(u)\ f\{p'(u)\}\, g'\{p(u)\}$$

$$\text{if}\quad f\{p'(u)\}\, g\{p(u)\} \to 0 \text{ as } u \to \pm\infty. \tag{3.33}$$

The special case $f\{x\} = x^{n+1}/(n+1)$ reduces to (3.28) and (3.29). Whereas the left-hand side of (3.33) requires evaluation of $p''(u)$, the right-hand side does not. These two forms can be used as numerical checks on each other.

3.6 SPECIAL CASES OF PERFORMANCE PARAMETERS

When the overlap index or average usage, A, in (3.7) is zero, the characteristic function in (3.8) takes the special form

$$F_2(\xi) = \exp\left(-\frac{\Gamma}{1+\Gamma}\frac{\xi^2}{2}\right)_{A=0} \to \exp\left(-\xi^2/2\right) , \tag{3.34}$$

regardless of the values of μ, γ, α_0, since $\lim \Gamma = \infty$, by (3.7). The corresponding probability density function in (3.26) is then also Gaussian,

$$p(u)_{A=0} = (2\pi)^{-1/2} \exp\left(-u^2/2\right). \tag{3.35}$$

Evaluation of the performance parameters in (3.27) is then straightforward:

$$L^{(2)} = 1 ,\quad L^{(4)} = 2 ,\quad L^{(2,2)} = 2 ,\quad L^{(6)} = 8 ,\quad \text{for } A = 0. \tag{3.36}$$

In this particular case, $L^{(6)}$ is positive; however, it need not be so, generally.

As the ratio of annular radii, α_0, in (3.2) approaches zero, the characteristic function F_2 approaches the result

$$F_2(\xi) = \exp\left(-\frac{\Gamma}{1+\Gamma}\xi^2 \Big/ 2\right), \tag{3.37}$$

independent of μ, γ, A, if $\gamma+\frac{\mu}{2} > 1$ and $A > 0$. To see this, use (3.3)-(3.6) to get

$$\alpha_o \to 0+,\ L \to +\infty,\ \text{since } \gamma > 0,\ \alpha_o^g \to 0,\ \text{since } \mu < 2,$$

$$\alpha_o^h \to +\infty \ \text{since } h < 0 \text{ (above)};\ c_1 \to 0,\ c_3 \to 0,$$

$$H_2(\xi) \to \frac{g}{\gamma} \int_1^{+\infty} du\, u^{-1-g/\gamma} = 1 \quad \text{for all } \xi . \tag{3.37a}$$

Then according to (3.8), F_2 approaches (3.34). Thus, as $\alpha_o \to 0+$, the performance parameters approach the results

$$\left.\begin{aligned} L^{(2)} &= 1 + \frac{1}{\Gamma}, \quad L^{(4)} = 2\left(1 + \frac{1}{\Gamma}\right)^2, \\ L^{(2,2)} &= 2\left(1 + \frac{1}{\Gamma}\right)^2, \quad L^{(6)} = 8\left(1 + \frac{1}{\Gamma}\right)^3, \end{aligned}\right\} \text{for } A > 0, \tag{3.37b}$$

so that there is no need to study the case $\alpha_o = 0$ explicitly.

3.7 PROCEDURE FOR EVALUATION

The probability density function of the normalized instantaneous amplitude is given in (3.26) in terms of the characteristic function by

$$p(u) = \frac{1}{2\pi}\int_{-\infty}^{+\infty} d\xi\, \exp(-iu\xi)\, F_2(\xi) = \frac{1}{\pi}\,\mathrm{Re}\int_0^{+\infty} d\xi\, \exp(-iu\xi)\, F_2(\xi) . \tag{3.38}$$

The derivatives then follow according to

$$p'(u) = \frac{1}{2\pi} \int_{-\infty}^{+\infty} d\xi \, \exp(-iu\xi) \, (-i\xi) \, F_2(\xi) = \frac{1}{\pi} \, \mathrm{Im} \int_0^{+\infty} d\xi \, \exp(-iu\xi) \, \xi \, F_2(\xi),$$

$$p''(u) = \frac{1}{2\pi} \int_{-\infty}^{+\infty} d\xi \, \exp(-iu\xi) \, (-i\xi)^2 \, F_2(\xi) = -\frac{1}{\pi} \, \mathrm{Re} \int_0^{+\infty} d\xi \, \exp(-iu\xi) \, \xi^2 \, F_2(\xi). \quad (3.39)$$

These are very advantageous forms, since they can be accomplished via Fast Fourier Transforms (FFT's). They can then be substituted in (3.27), and check cases (3.30) and (3.31), for evaluation of the performance parameters.

However, there is a nuance which must be developed in detail. Observe from the general expression (3.4) that $H_2(\xi) \to 0$ as $\xi \to \pm\infty$. Then the asymptotic behavior of characteristic function F_2 in (3.8) is, for large ξ,

$$F_2(\xi) \sim f_a(\xi) \equiv \exp\left[-A - \frac{\Gamma}{1+\Gamma} \frac{\xi^2}{2}\right]. \quad (3.40)$$

This leaves a remainder function

$$f_b(\xi) = F_2(\xi) - f_a(\xi) =$$

$$= \exp\left[-A - \frac{\Gamma}{1+\Gamma} \frac{\xi^2}{2}\right] \left\{\exp\left[A \, H_2(\xi)\right] - 1\right\} . \quad (3.41)$$

The reason for this splitting of characteristic function F_2 is that the probability density function* corresponding to the asymptotic form f_a is (exactly)

---

*Strictly, $p_a(u)$ is not a probability density function, since it has area $\exp(-A) < 1$; however, for simplicity, we continue to refer to it as a probability density function since it is positive for all u.

$$p_a(u) = \left(\frac{2\pi\Gamma}{1+\Gamma}\right)^{-1/2} \exp\left[- A - \frac{1+\Gamma}{\Gamma} \frac{u^2}{2}\right] \text{ for all } u, \tag{3.42}$$

which is extremely sharp in u (about the origin) if Γ is small. Since we will be interested in values of Γ near 10^{-8}, this sharpness in u will cause numerical problems in (3.27) if not handled properly.

Numerical evaluation of p_a, as well as p_a' and p_a'', is directly possible from (3.42). However,

$$p_b(u) = p(u) - p_a(u) = \frac{1}{2\pi} \int_{-\infty}^{+\infty} d\xi \exp(-iu\xi)\, f_b(\xi) =$$

$$= \frac{1}{\pi} \operatorname{Re} \int_{0}^{+\infty} d\xi \exp(-iu\xi)\, f_b(\xi) \tag{3.43}$$

must be evaluated via an FFT and by use of (3.41) and (3.4) (or (3.12) if $\mu = 2-\gamma$). In particular, if we use the Trapezoidal rule of integration, with sampling increment Δ in ξ, (3.43) yields

$$p_b(u) \cong \frac{\Delta}{\pi} \operatorname{Re} \sum_{n=0}^{+\infty} \epsilon_n \exp(-iun\Delta)\, f_b(n\Delta) \equiv \tilde{p}_b(u), \tag{3.44}$$

where $\epsilon_o = 1/2$, $\epsilon_n = 1$ for $n \geq 1$. The quantity $\tilde{p}_b$, defined by the right-hand side, is an approximation to p_b. Function $\tilde{p}_b(u)$ obviously has period $2\pi/\Delta$ in u; in order to control the inherent aliasing in $\tilde{p}_b(u)$, Δ must be chosen small.

Reference to (3.39) immediately yields the additional approximations

$$p_b'(u) \cong \frac{\Delta^2}{\pi} \text{ Im} \sum_{n=1}^{+\infty} \exp(-iun\Delta)\ n\ f_b(n\Delta) = \tilde{p}_b'(u) \ ,$$

$$p_b''(u) \cong -\frac{\Delta^3}{\pi} \text{ Re} \sum_{n=1}^{+\infty} \exp(-iun\Delta)\ n^2\ f_b(n\Delta) = \tilde{p}_b''(u); \qquad (3.45)$$

these are actually exact relations for $\tilde{p}_b'$ and $\tilde{p}_b''$, where $\tilde{p}_b$ was defined by (3.44).

At this point, we restrict the evaluation of (3.44) and (3.45) to a discrete set of values of u covering a full period of length $2\pi/\Delta$. Namely, we consider

$$u = \frac{2\pi k}{M\Delta} \quad \text{for } 0 \leq k \leq M - 1, \qquad (3.46)$$

where M is an integer. Then

$$\tilde{p}_b\left(\frac{2\pi k}{M\Delta}\right) = \frac{\Delta}{\pi} \text{ Re} \sum_{n=0}^{+\infty} \epsilon_n \exp(-i2\pi kn/M)\ f_b(n\Delta),$$

$$\tilde{p}_b'\left(\frac{2\pi k}{M\Delta}\right) = \frac{\Delta^2}{\pi} \text{ Im} \sum_{n=1}^{+\infty} \exp(-i2\pi kn/M)\ n\ f_b(n\Delta),$$

$$\tilde{p}_b''\left(\frac{2\pi k}{M\Delta}\right) = -\frac{\Delta^3}{\pi} \text{ Re} \sum_{n=1}^{+\infty} \exp(-i2\pi kn/M)\ n^2\ f_b(n\Delta) \ . \qquad (3.47)$$

These equations can be efficiently and accurately evaluated via three M-point FFT's of collapsed sequences if necessary, ([13], pages 7-8), with insignificant truncation error. Since the u-increment in (3.46) and (3.47) is $2\pi/(M\Delta)$, we need to choose M large, so that when (3.47) is employed in the integrals (3.27) for the performance parameters, accuracy is retained. Because Δ itself must be chosen small enough that aliasing is insignificant in (3.44) and (3.45), this puts a burden on very large M, typically of the order 8192 in

our applications. Whereas the Trapezoidal rule is best for evaluation of the Fourier transforms in (3.43)-(3.47), ([13], appendix A.1), the integrals in (3.27) are best handled by Simpson's rule; this procedure was employed in this report, in order to achieve 6-7 decimals of accuracy in all the performance parameters over the complete range of α_o, A, Γ studied. Details on the integration procedure are given in appendixes A.2 and A.3.

The final results for probability density function p, as needed in (3.27), are given by (3.42)-(3.44) as

$$p(u) = p_a(u) + p_b(u) \cong p_a(u) + \tilde{p}_b(u),$$

$$p'(u) = p_a'(u) + p_b'(u) \cong p_a'(u) + \tilde{p}_b'(u),$$

$$p''(u) = p_a''(u) + p_b''(u) \cong p_a''(u) + \tilde{p}_b''(u), \qquad (3.48)$$

where the approximation can only be good for $0 \leq u < \pi/\Delta$, due to aliasing at period $2\pi/\Delta$.

The discrete equivalents to (3.48) are

$$p\left(\frac{2\pi k}{M\Delta}\right) \cong p_a\left(\frac{2\pi k}{M\Delta}\right) + \tilde{p}_b\left(\frac{2\pi k}{M\Delta}\right) \text{ for } 0 \leq k < \frac{M}{2}, \qquad (3.49)$$

with obvious extensions for p' and p". The function p_a and its derivatives are immediately available from (3.42), while $\tilde{p}_b$ and its derivatives are given by the FFT's in (3.47).

4. PROBABILITY DENSITIES AND DISTRIBUTIONS

The probability density function p(u) for the normalized instantaneous amplitude is given in (3.26) et seq., where it is shown that p(u) is even in u. This function is split into a narrow component and a broad component, both centered about u = 0, in (3.40) et seq. The sharp term, $p_a(u)$, is given in (3.42), while the broad term, $p_b(u)$, is the remainder of (3.43).

The probability density function, p(u), is plotted in figures 4.1 through 4.9, for all possible combinations of parameter values

$$\begin{aligned} \alpha_o &= .25,\ .5,\ .75 \\ \Gamma &= 1E{-}5,\ 1E{-}4,\ 1E{-}3 \\ A &= .1,\ .2,\ .3,\ .4,\ .5\ . \end{aligned} \tag{4.1}$$

Since p(u) is even, we only plot it for u > 0. The abscissa and ordinate scales are logarithmic, with LOG denoting the base 10. The breakdown into sharp and broad components is well illustrated in these figures. For the extremely small values of Γ of interest, such as 1E-8, the sharp component would be narrower and taller yet, but always with a total area of exp(-A); see (3.42).

The exceedance distribution functions corresponding to these probability density functions, and for the same set of parameter values (4.1), are plotted in figures 4.10 through 4.18. Again, both abscissa and ordinate scales are logarithmic. Because probability density function $p(u)$ is even in u, the exceedance distribution function is .5 at $u = 0$, and we need plot it only for $u > 0$.

A program for the calculation of the probability density function $p(u)$, as well as its derivatives $p'(u)$ and $p''(u)$, is given in appendix A.4. Actually, this program accomplishes considerably more, yielding the performance parameters specified in (3.27), as well as check cases (3.30) and (3.31).

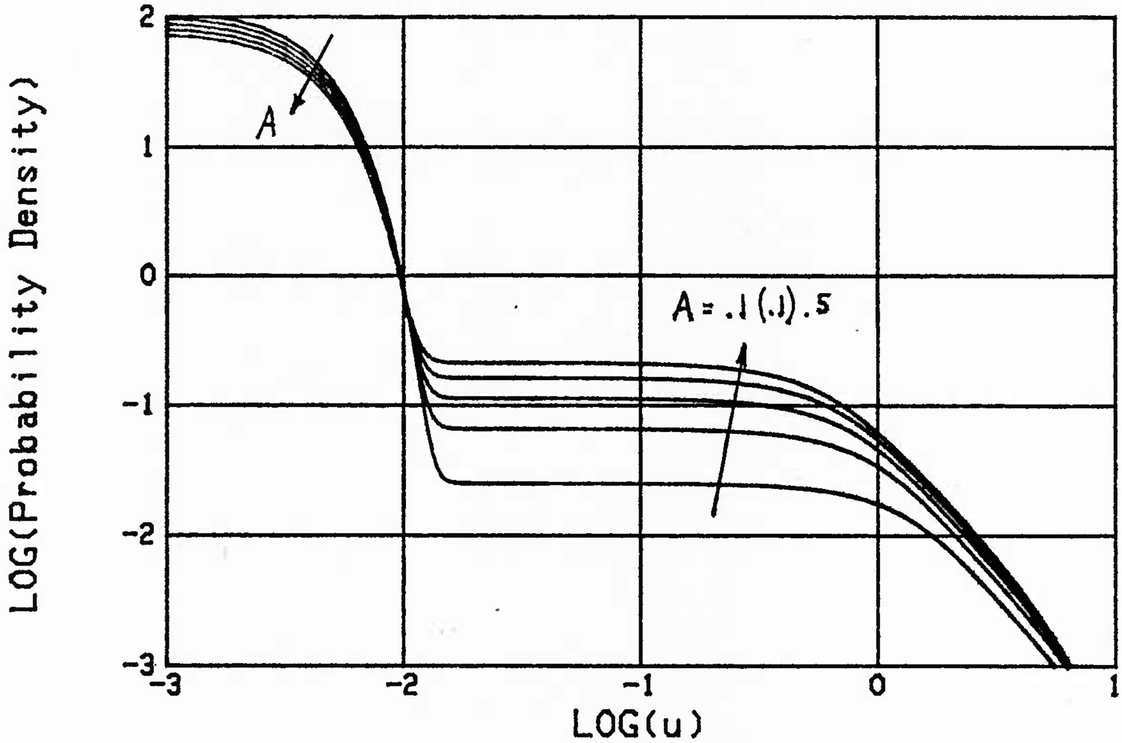

Figure 4.1 Probability Density Function for α_o = .25, Γ = 1E-5

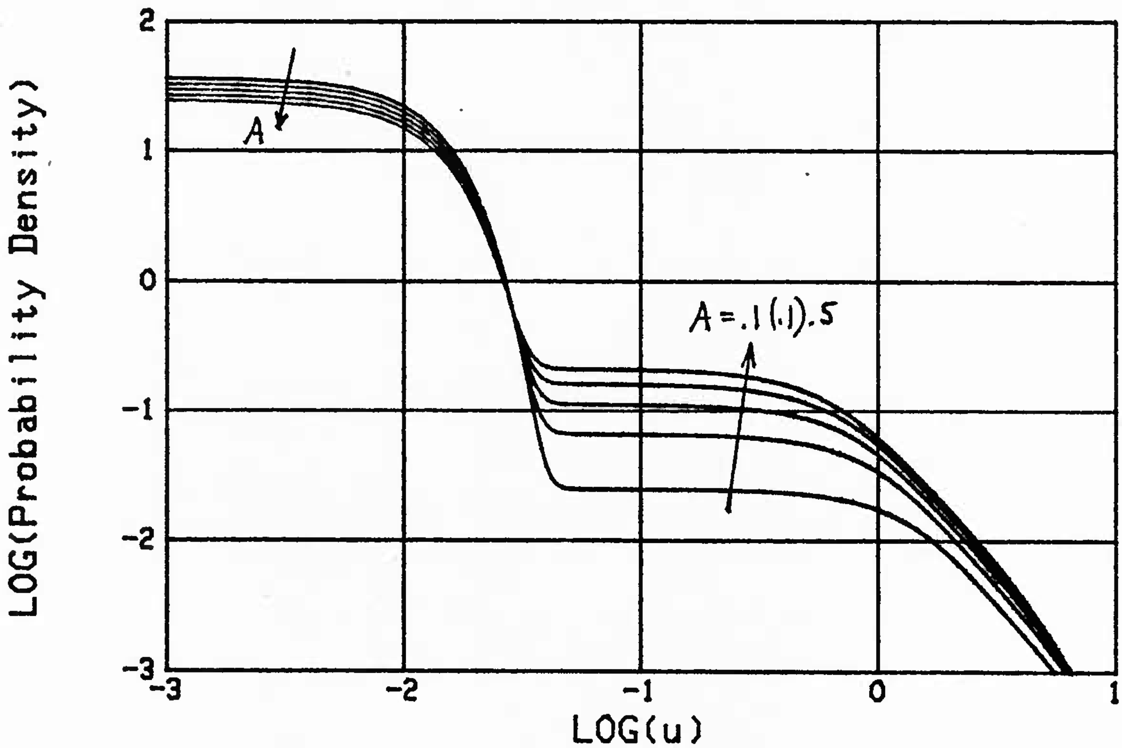

Figure 4.2 Probability Density Function for α_o = .25, Γ = 1E-4

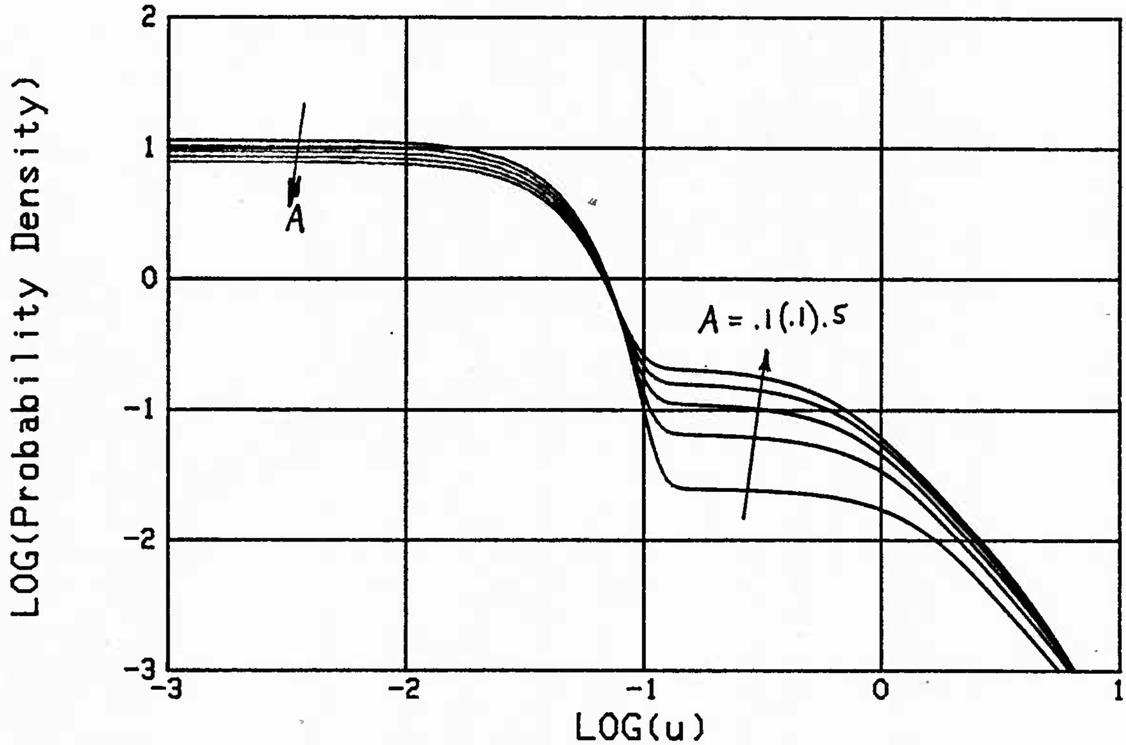

Figure 4.3 Probability Density Function for α_0 = .25, Γ = 1E-3

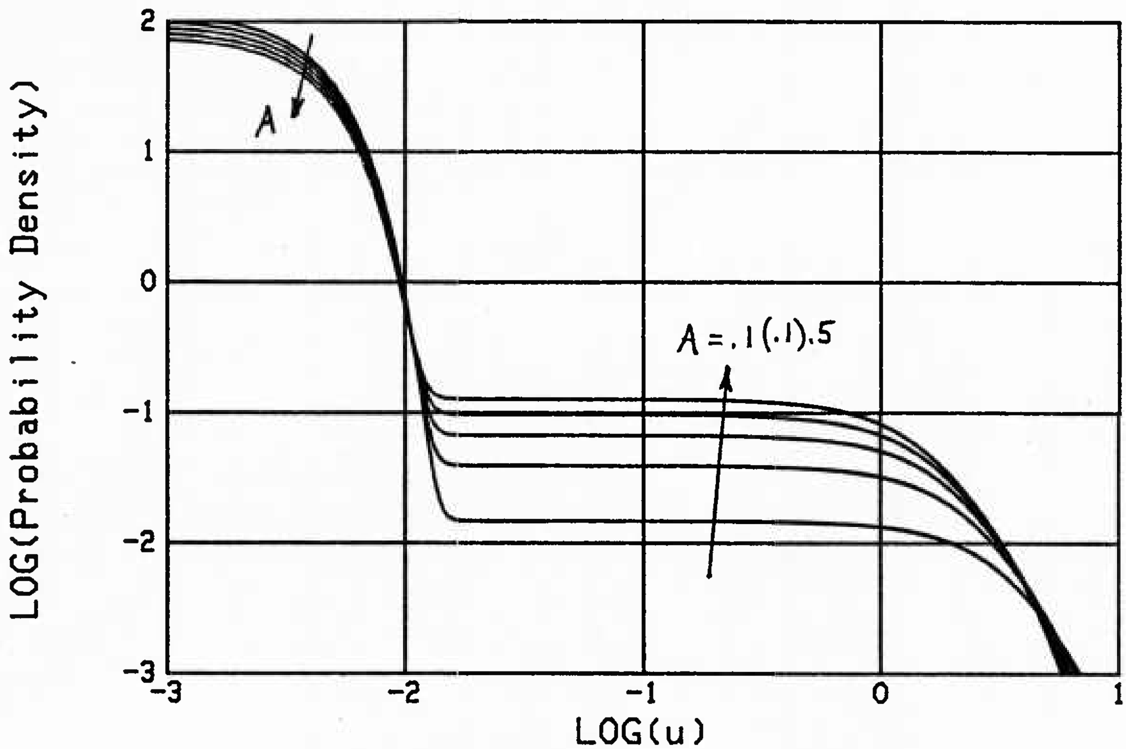

Figure 4.4 Probability Density Function for α_0 = .5, Γ = 1E-5

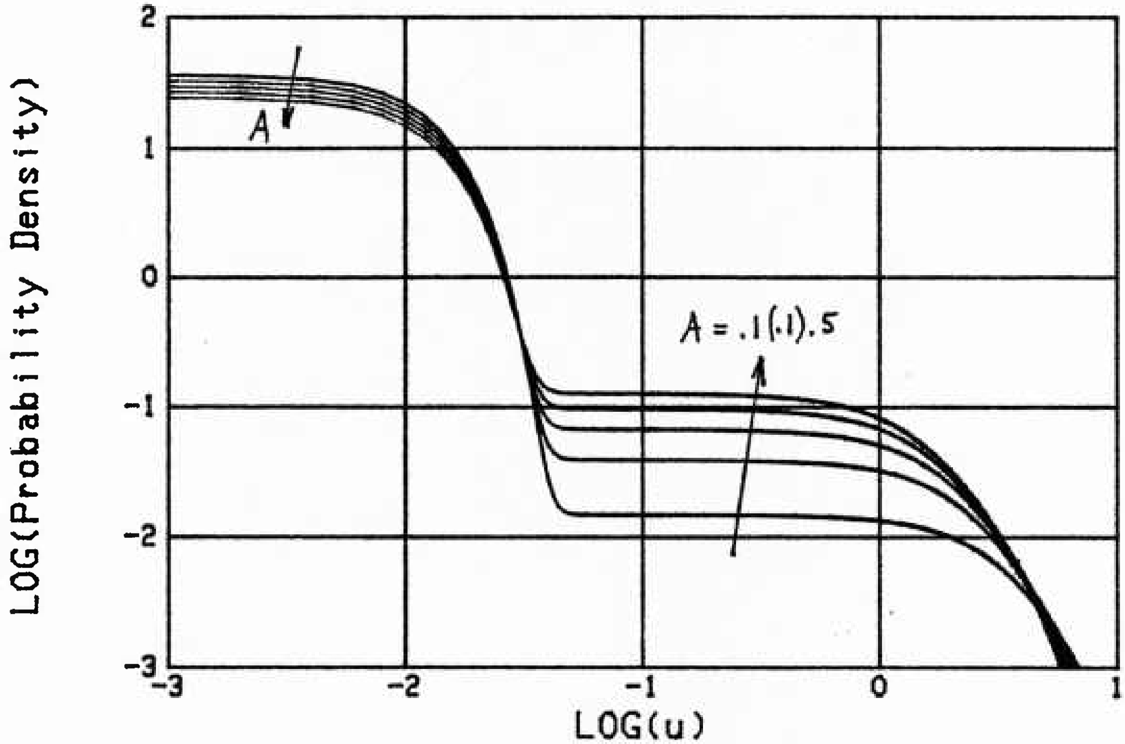

Figure 4.5 Probability Density Function for $\alpha_0 = .5$, $\Gamma = 1E-4$

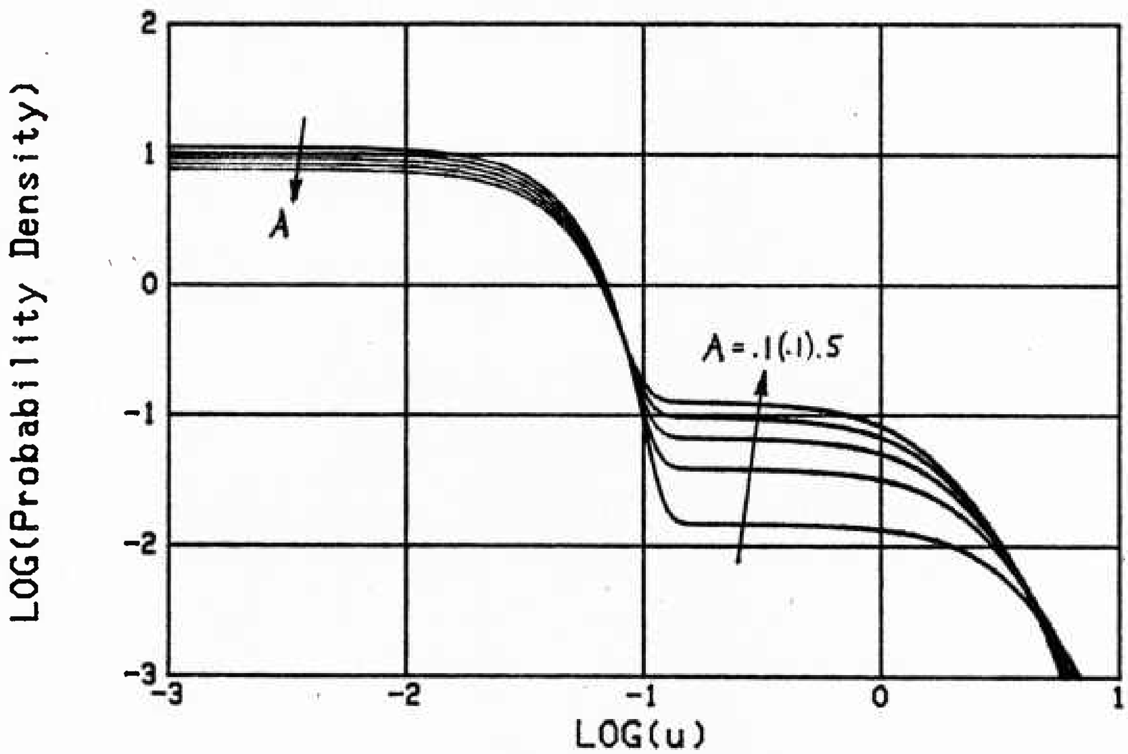

Figure 4.6 Probability Density Function for $\alpha_0 = .5$, $\Gamma = 1E-3$

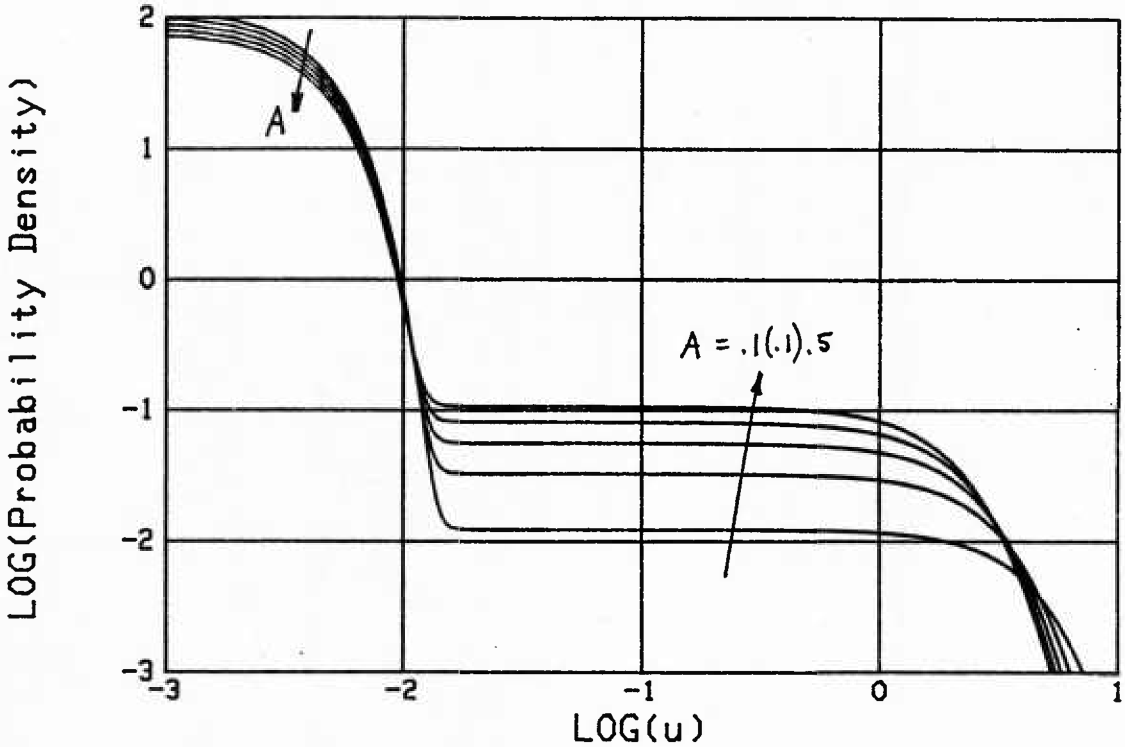

Figure 4.7 Probability Density Function for α_0 = .75, Γ = 1E-5

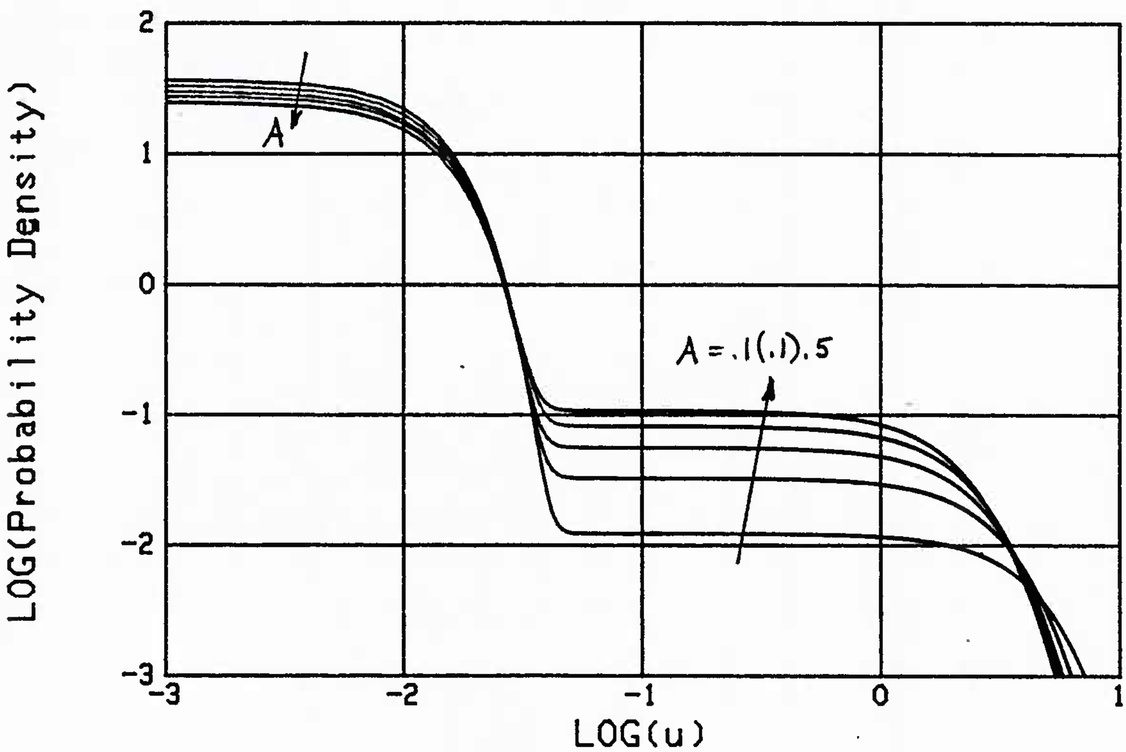

Figure 4.8 Probability Density Function for α_0 = .75, Γ = 1E-4

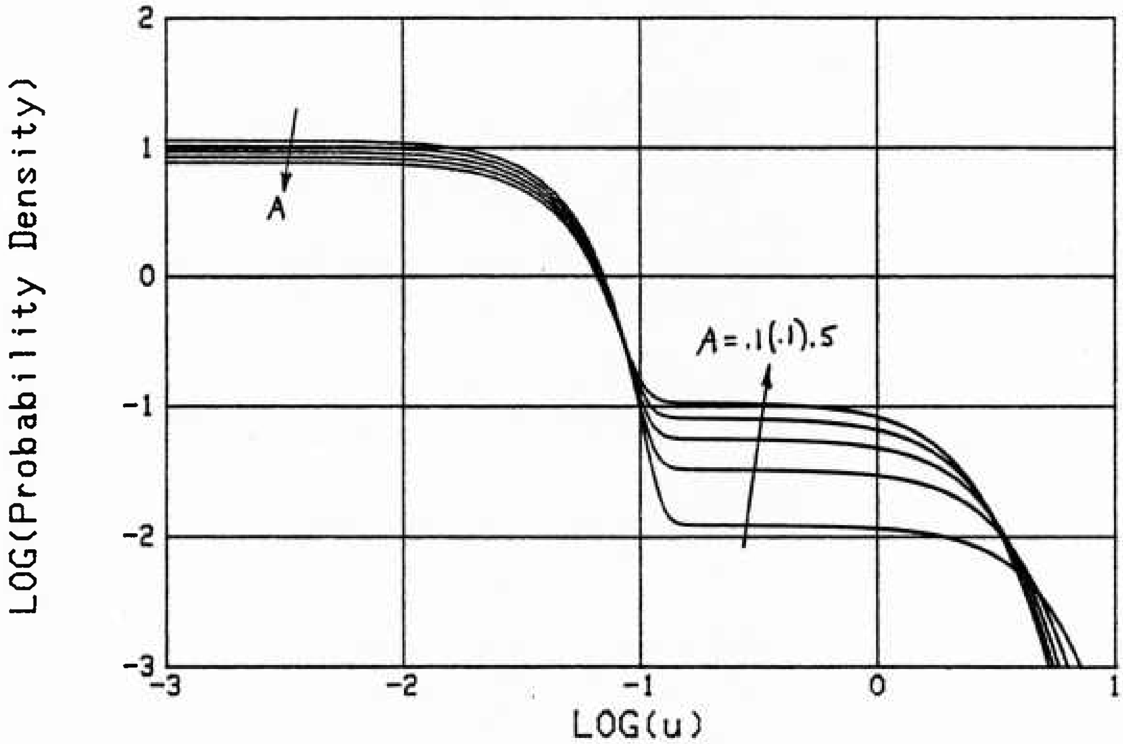

Figure 4.9 Probability Density Function for α_0 = .75, Γ = 1E-3

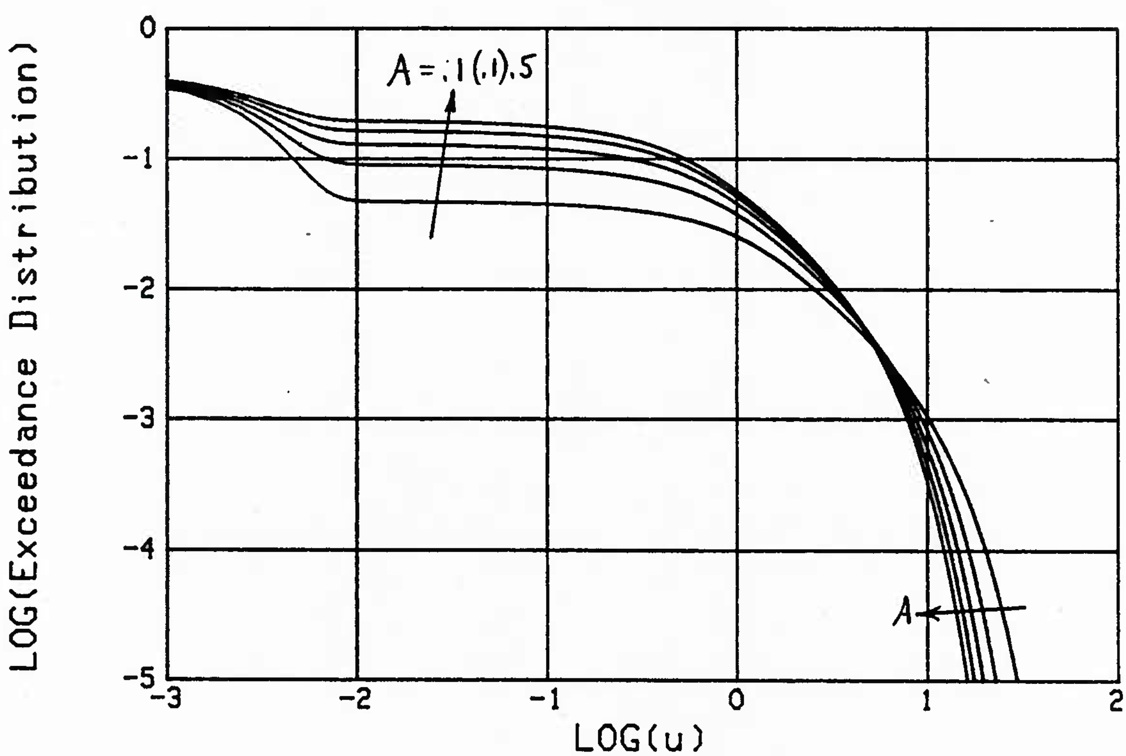

Figure 4.10 Exceedance Distribution Function for α_0 = .25, Γ = 1E-5

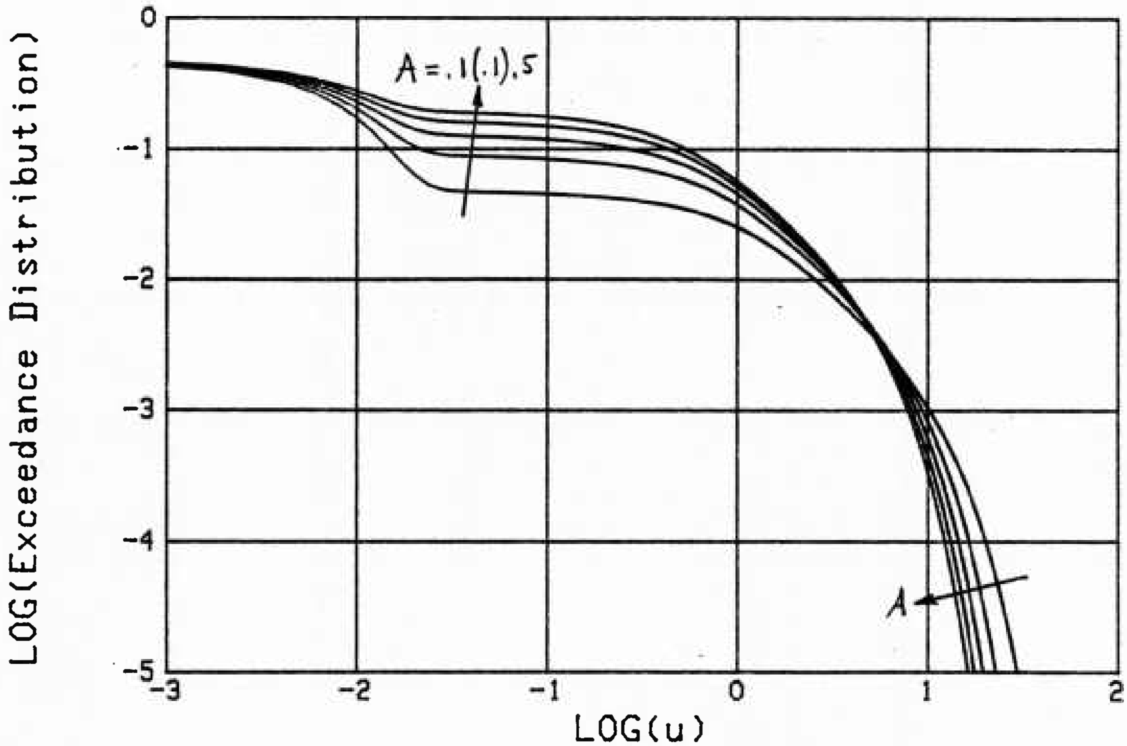

Figure 4.11 Exceedance Distribution Function for $\alpha_0 = .25$, $\Gamma = 1E-4$

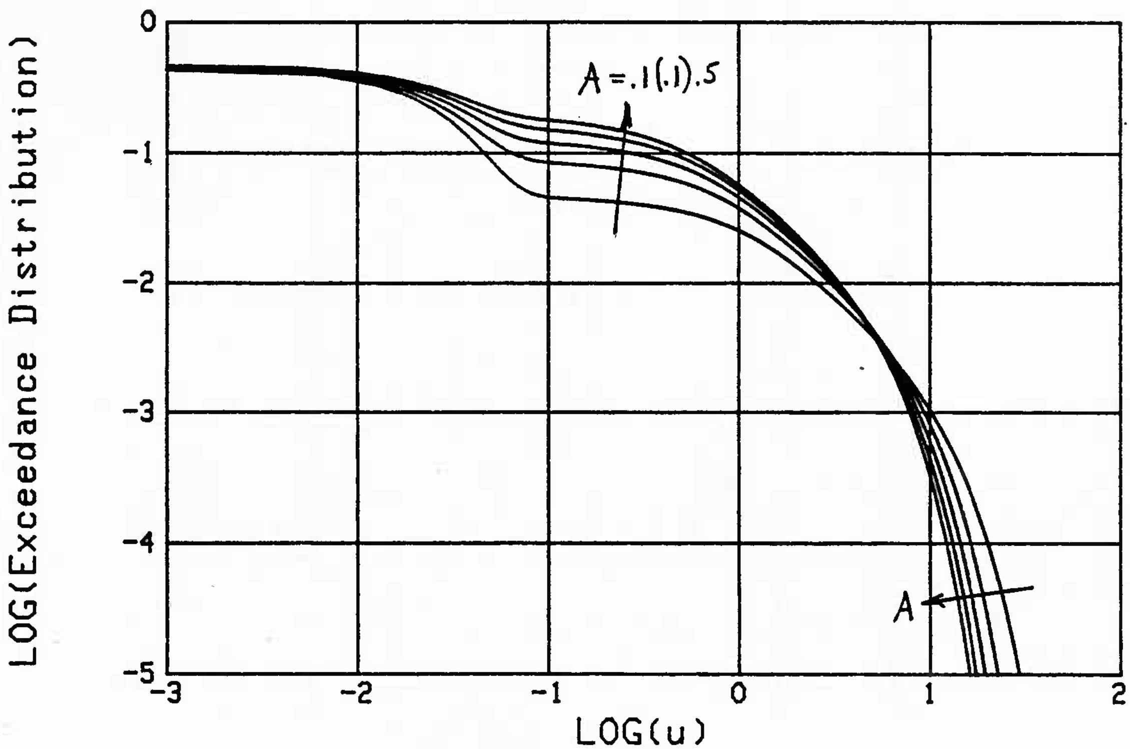

Figure 4.12 Exceedance Distribution Function for $\alpha_0 = .25$, $\Gamma = 1E-3$

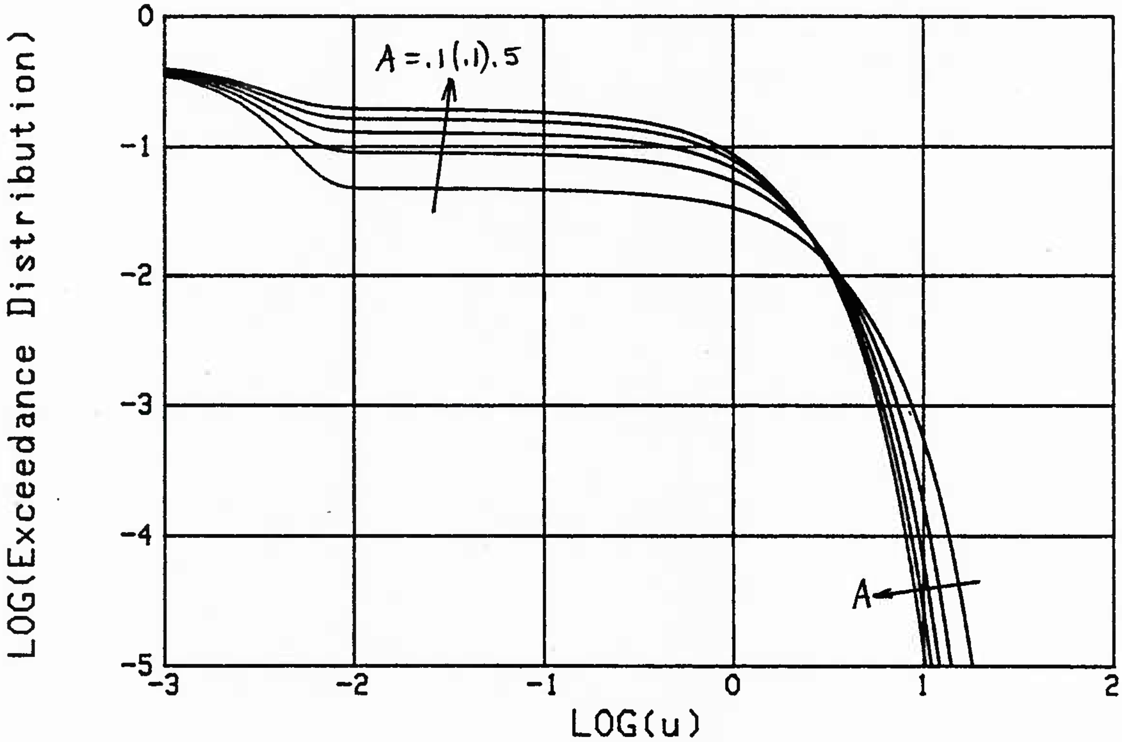

Figure 4.13 Exceedance Distribution Function for α_0 = .5, Γ = 1E-5

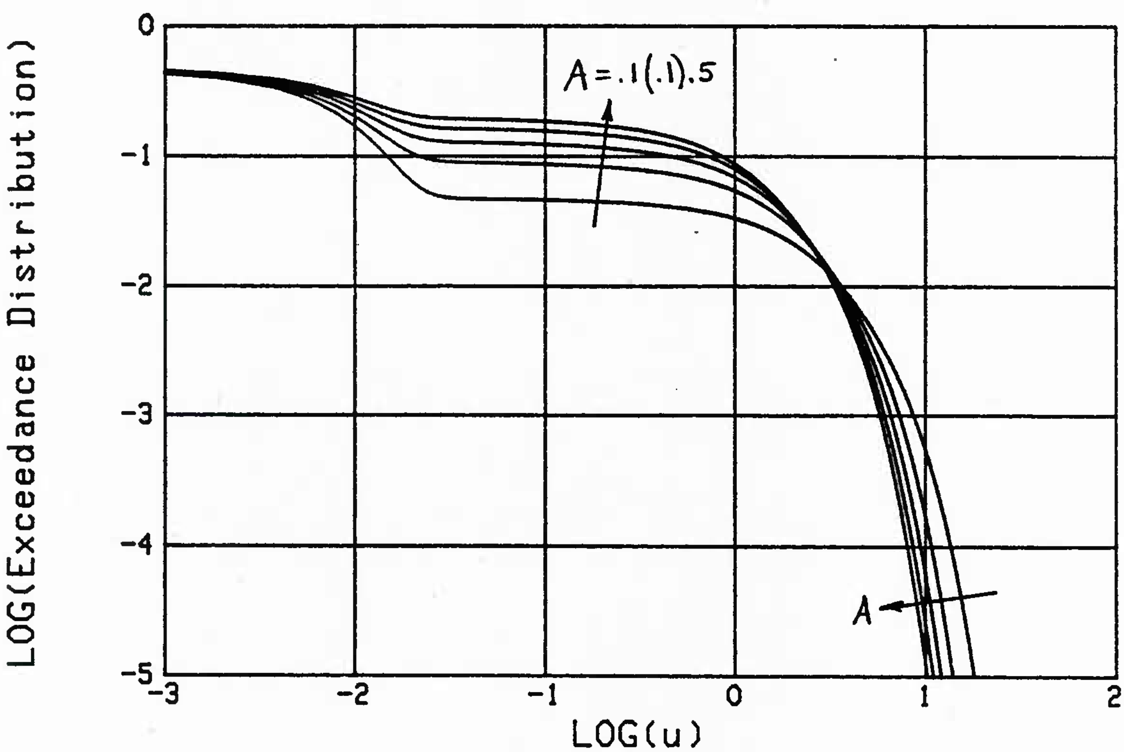

Figure 4.14 Exceedance Distribution Function for α_0 = .5, Γ = 1E-4

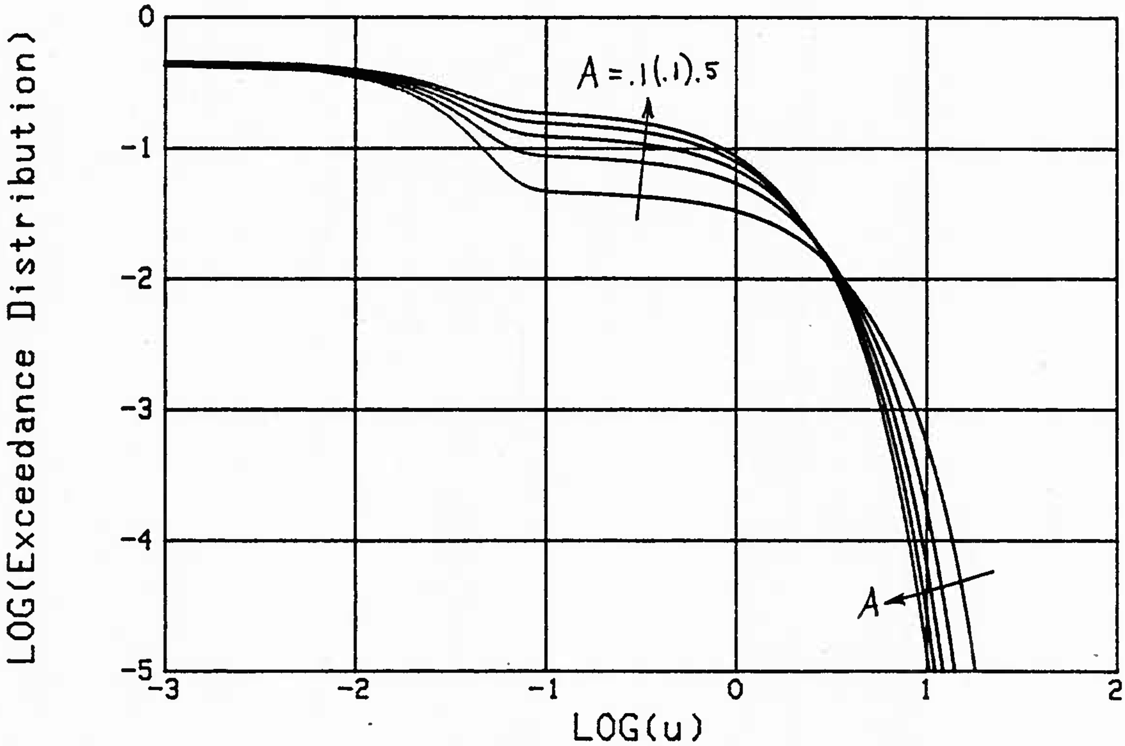

Figure 4.15 Exceedance Distribution Function for α_0 = .5, Γ = 1E-3

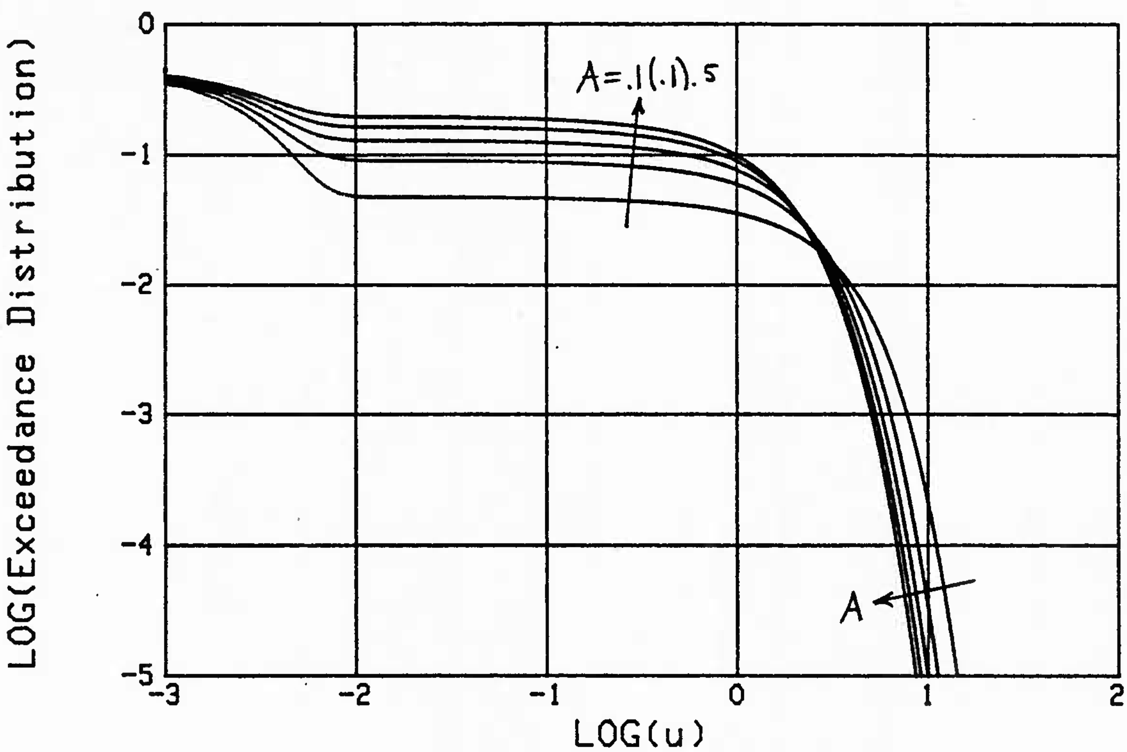

Figure 4.16 Exceedance Distribution Function for α_0 = .75, Γ = 1E-5

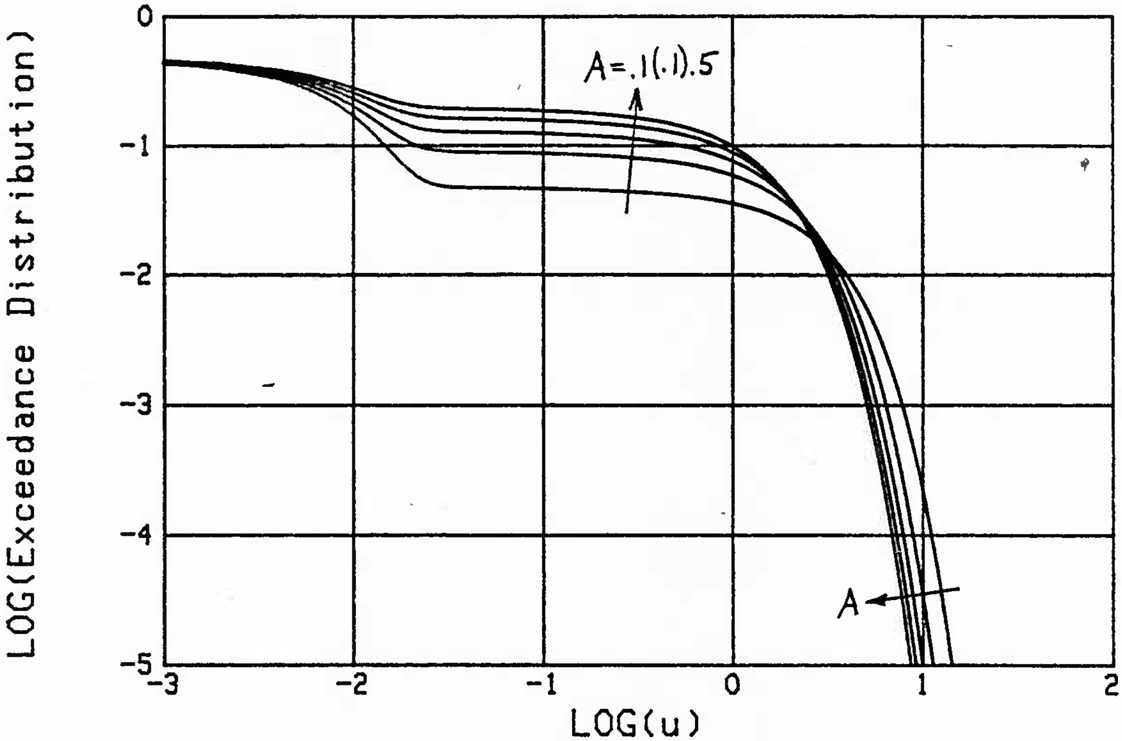

Figure 4.17 Exceedance Distribution Function for $\alpha_0 = .75$, $\Gamma = 1E-4$

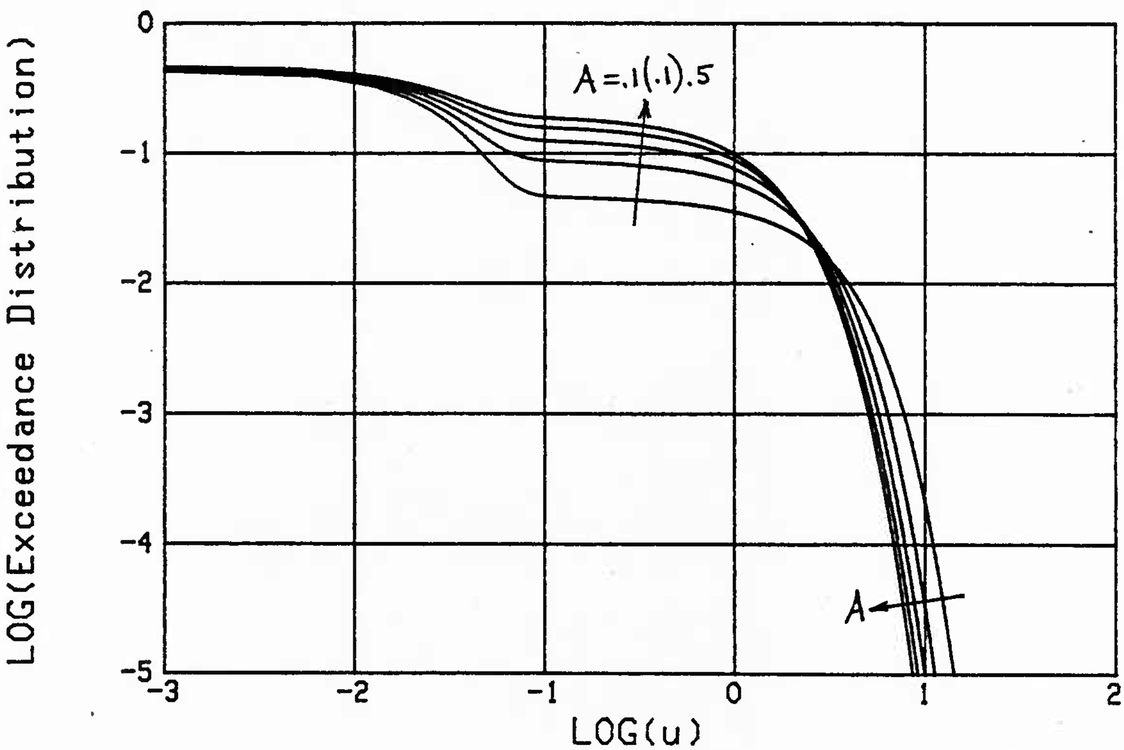

Figure 4.18 Exceedance Distribution Function for $\alpha_0 = .75$, $\Gamma = 1E-3$

5. ASSOCIATED STATISTICS $L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$

The associated statistics $L^{(2)}$, $L^{(4)}$, $L^{(6)}$, and $L^{(2,2)}$, as defined by (2.21)-(2.23), are presented in a graphical format in this section. Notice that since $L^{(2)}$, $L^{(4)}$, and $L^{(2,2)}$ are always positive, we can plot 10 log $L^{( )}$. $L^{(6)}$, however, takes on both positive and negative values. Therefore, we have plotted 10 log $|L^{(6)}|$ and indicate $L^{(6)} > 0$ by solid lines, whereas we indicate $L^{(6)} < 0$ by dashed lines. On all the graphs, A = 0 is the top curve, while A = 10 is the bottom curve. The abscissa values for Γ range from 10^{-8} to 10, while the parameter α_0 takes on values .25, .5, .75, 1.

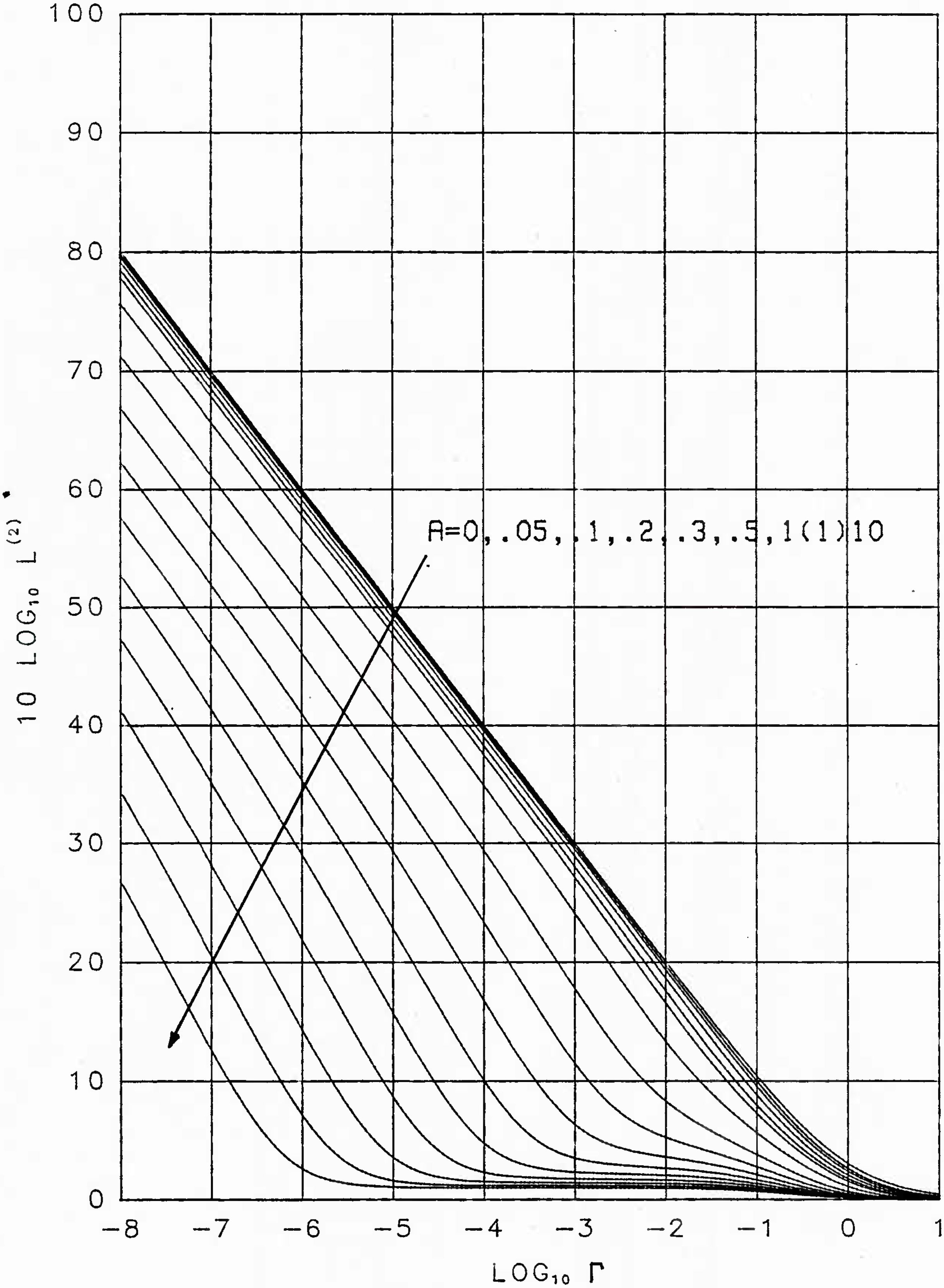

FIGURE 5.1 $L^{(2)}$ IN DB FOR $\alpha_0 = .25$

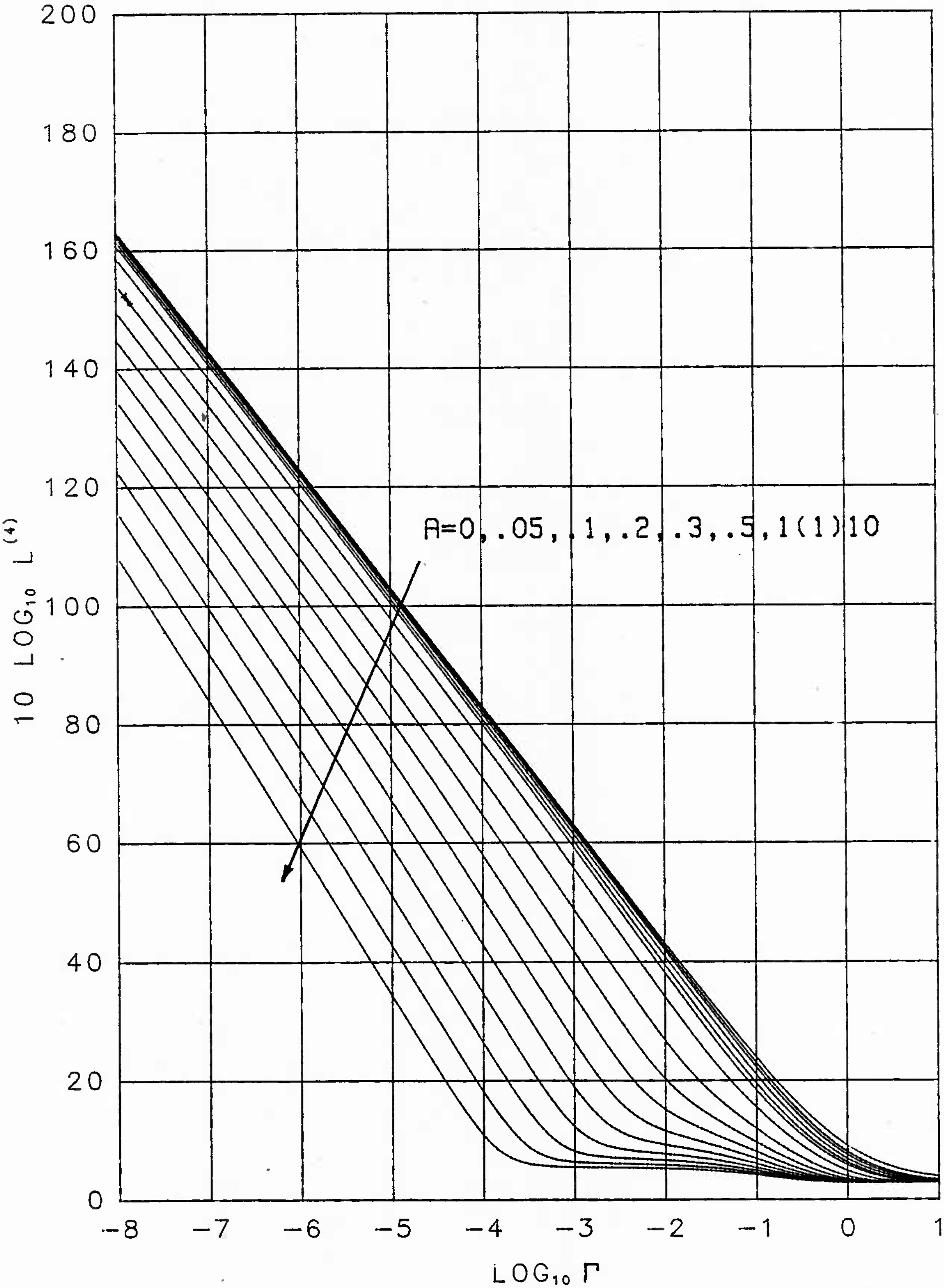

FIGURE 5.2 $L^{(4)}$ IN DB FOR $\alpha_0 = .25$

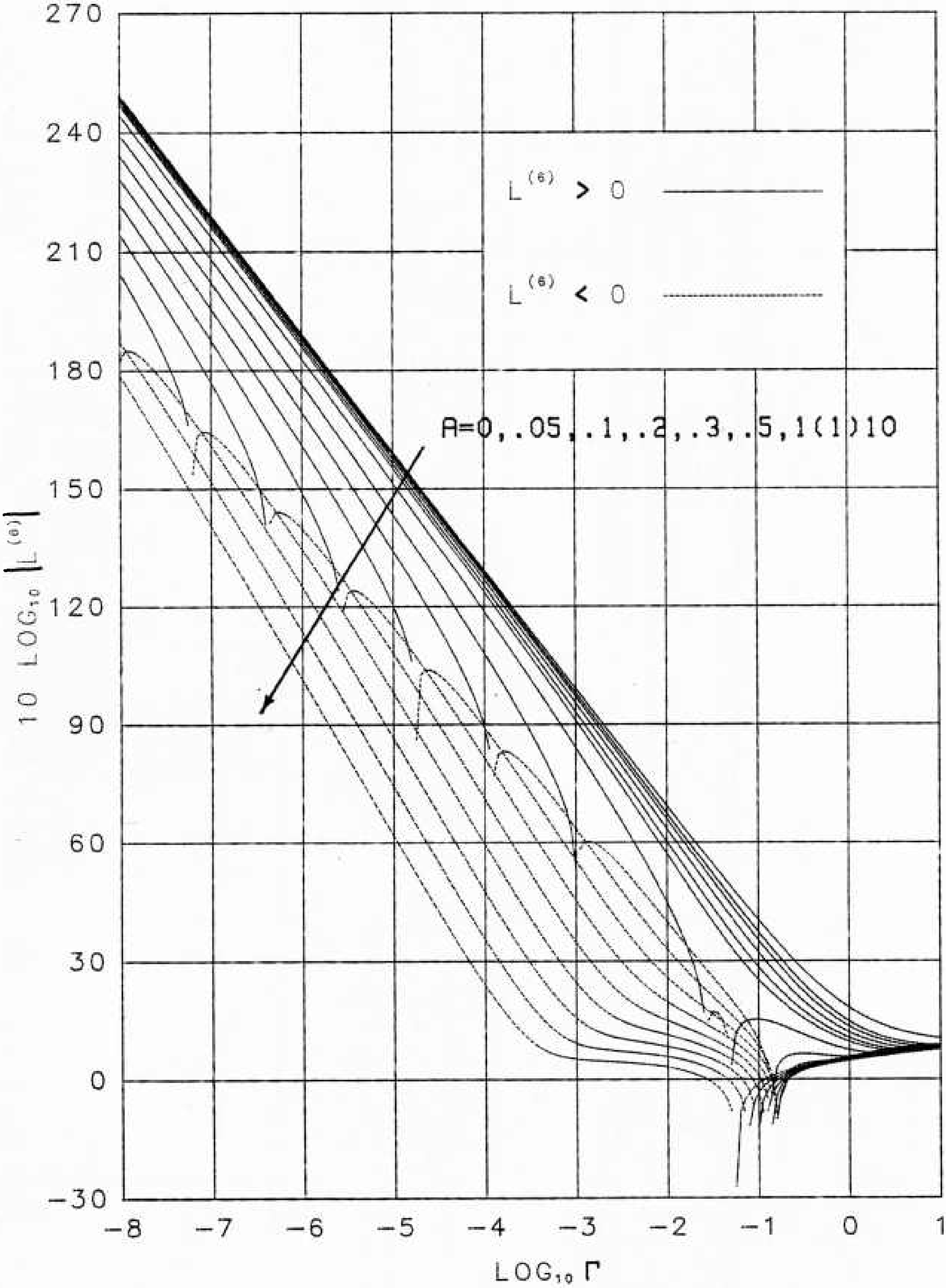

FIGURE 5.3 $L^{(6)}$ IN DB FOR $\alpha_0 = .25$

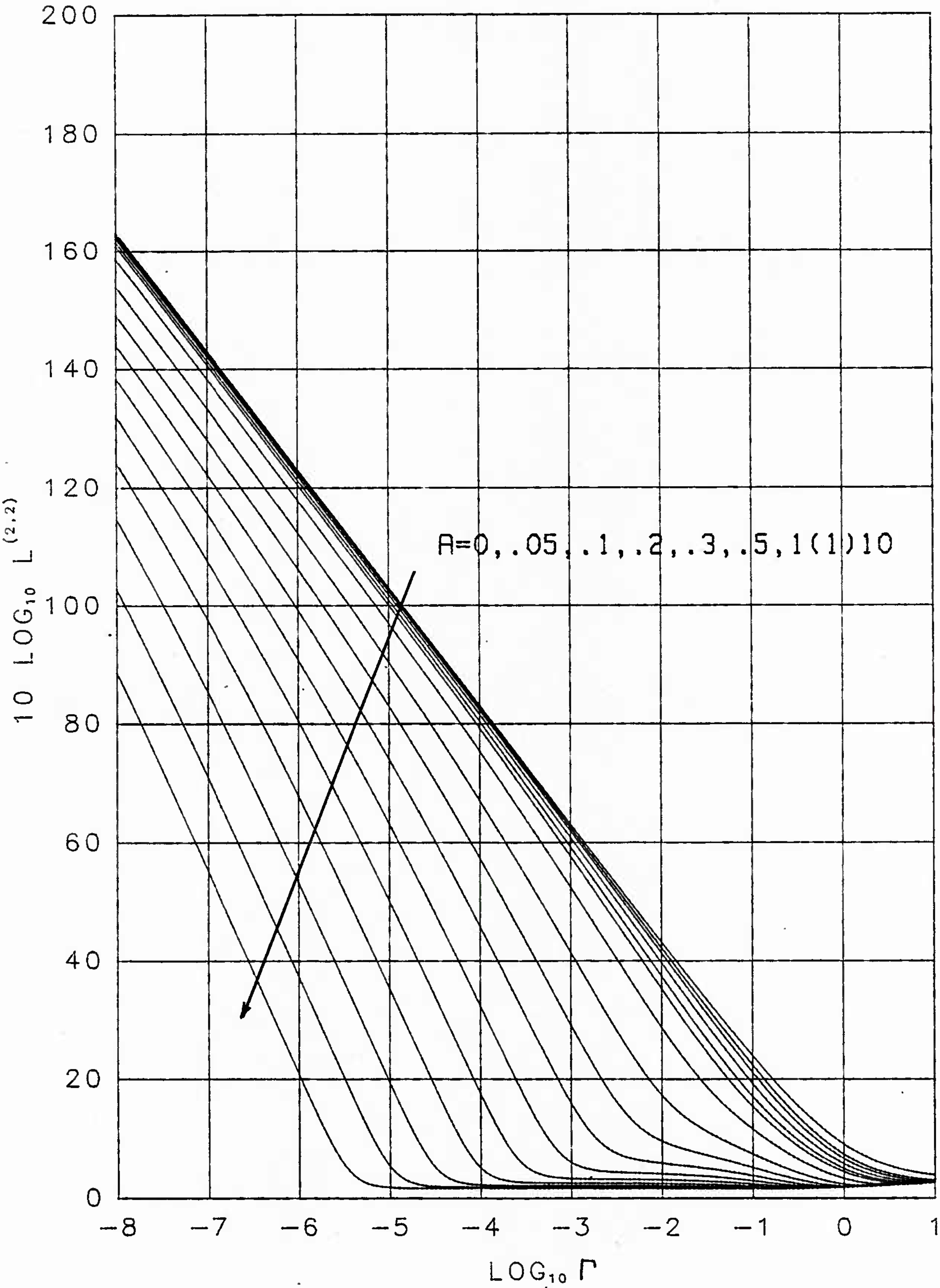

FIGURE 5.4 $L^{(2,2)}$ IN DB FOR $\alpha_0 = .25$

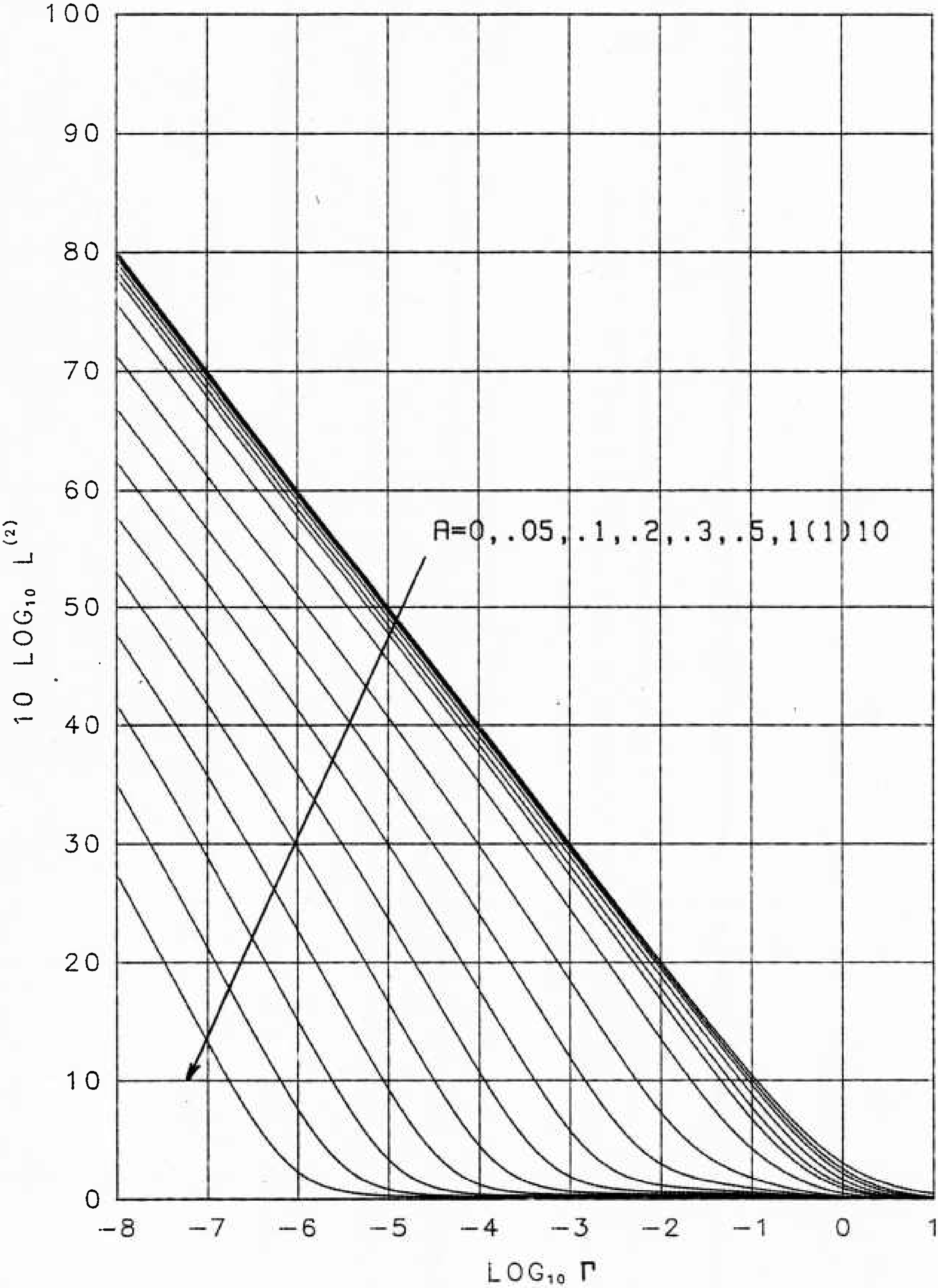

FIGURE 5.5 $L^{(2)}$ IN DB FOR $\alpha_0 = .5$

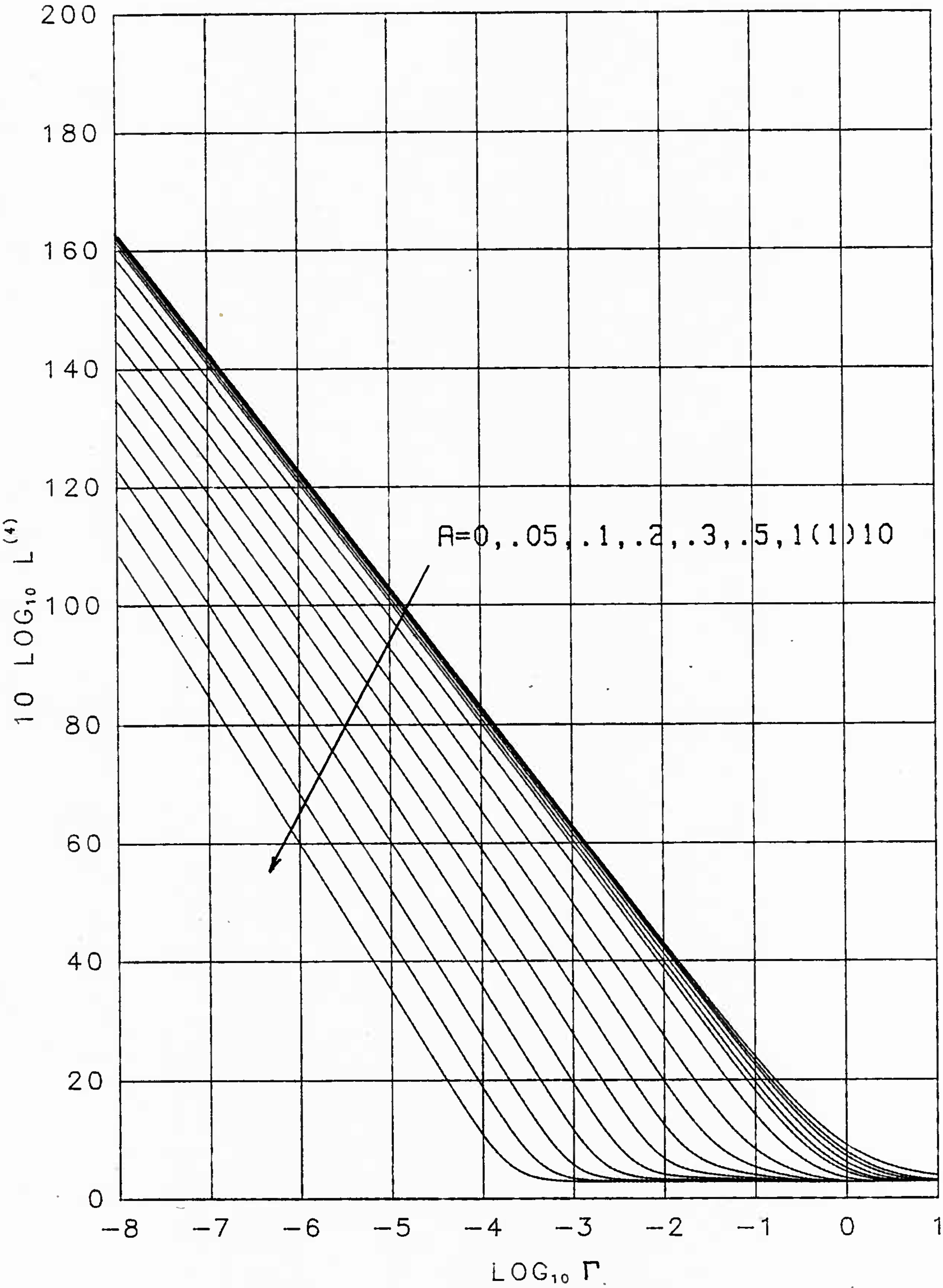

FIGURE 5.6 $L^{(4)}$ IN DB FOR $\alpha_0 = .5$

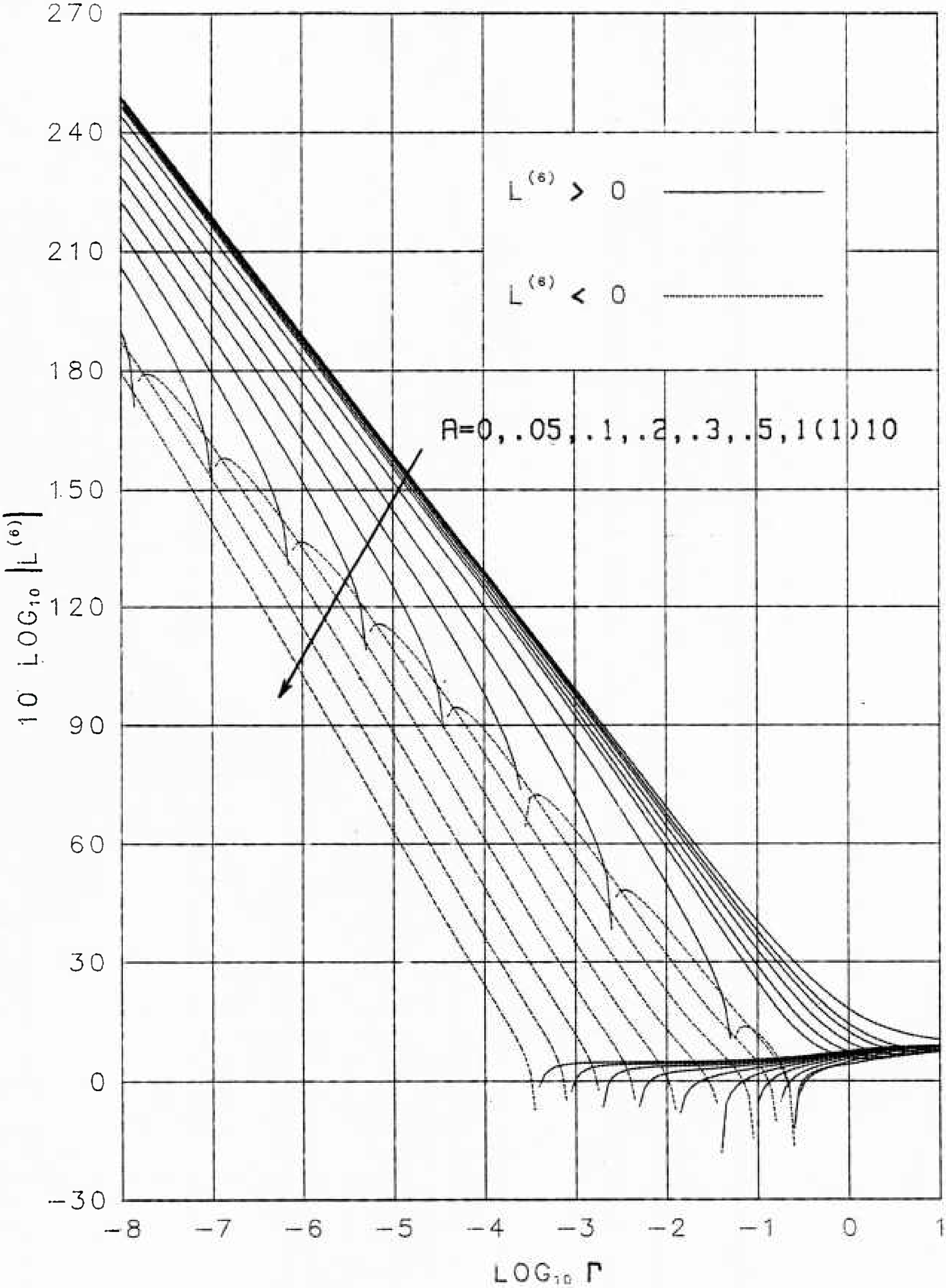

FIGURE 5.7 $L^{(6)}$ IN DB FOR $\alpha_0 = .5$

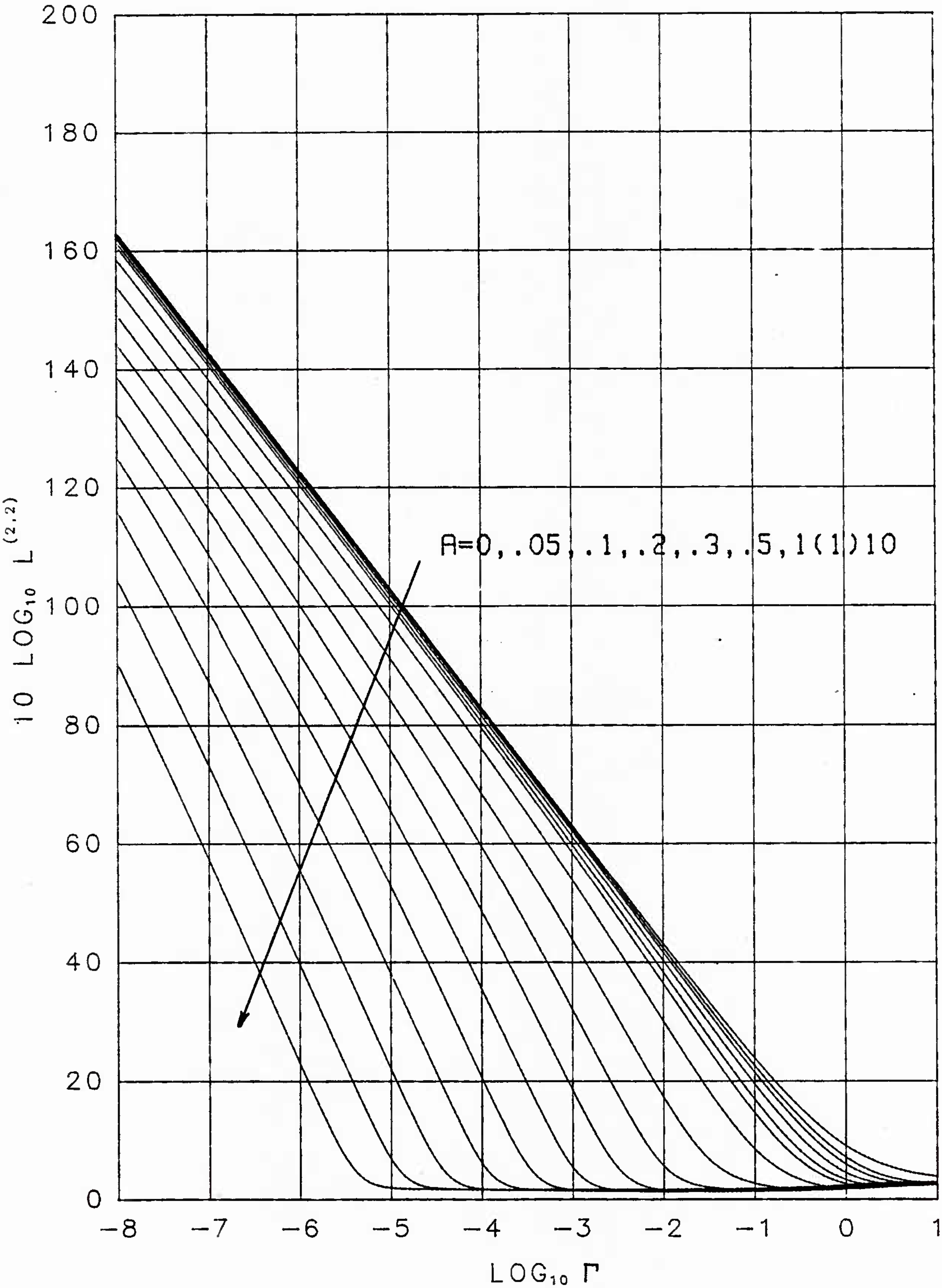

FIGURE 5.8 $L^{(2,2)}$ IN DB FOR $\alpha_0 = .5$

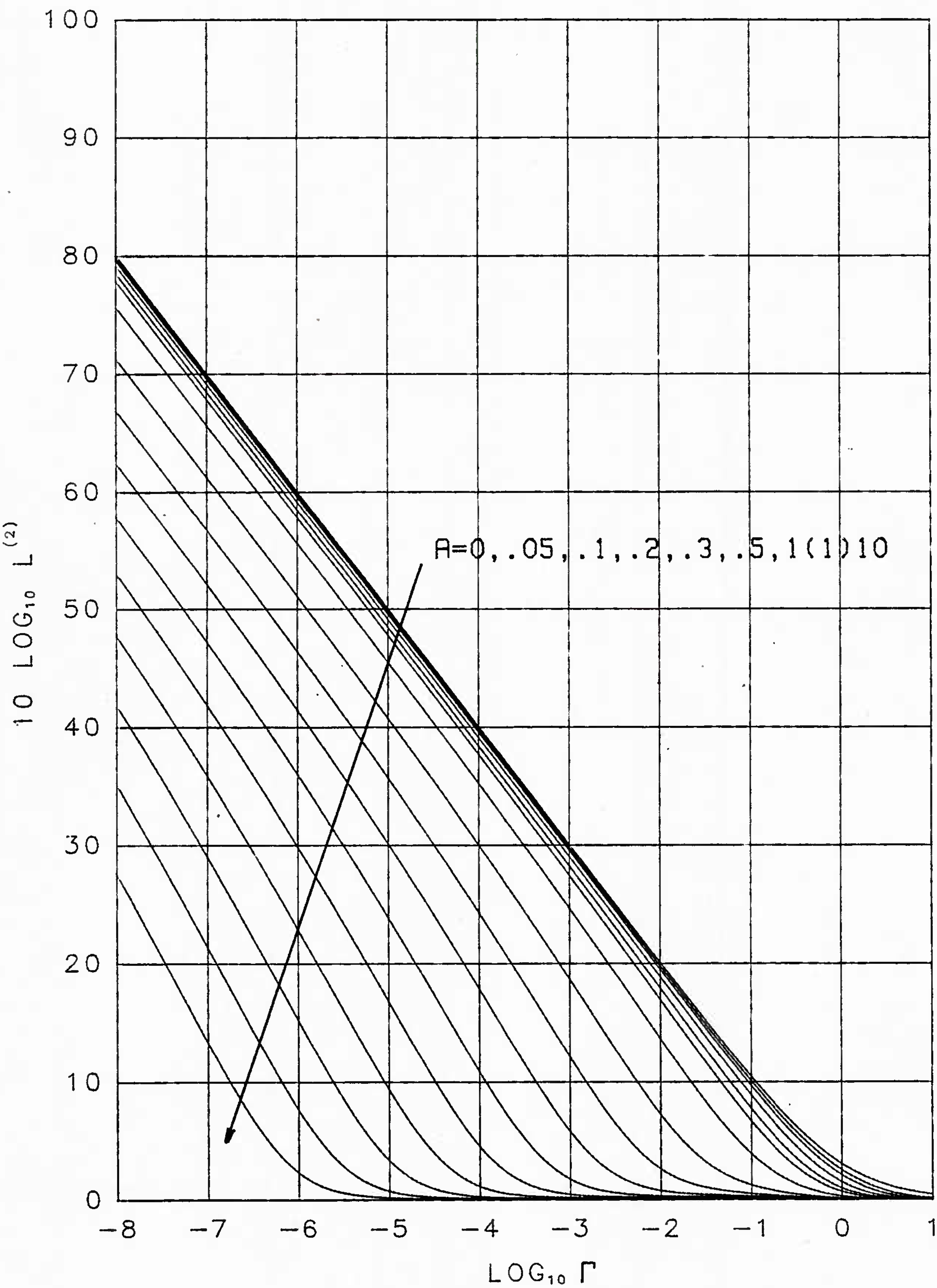

FIGURE 5.9 $L^{(2)}$ IN DB FOR $\alpha_0 = .75$

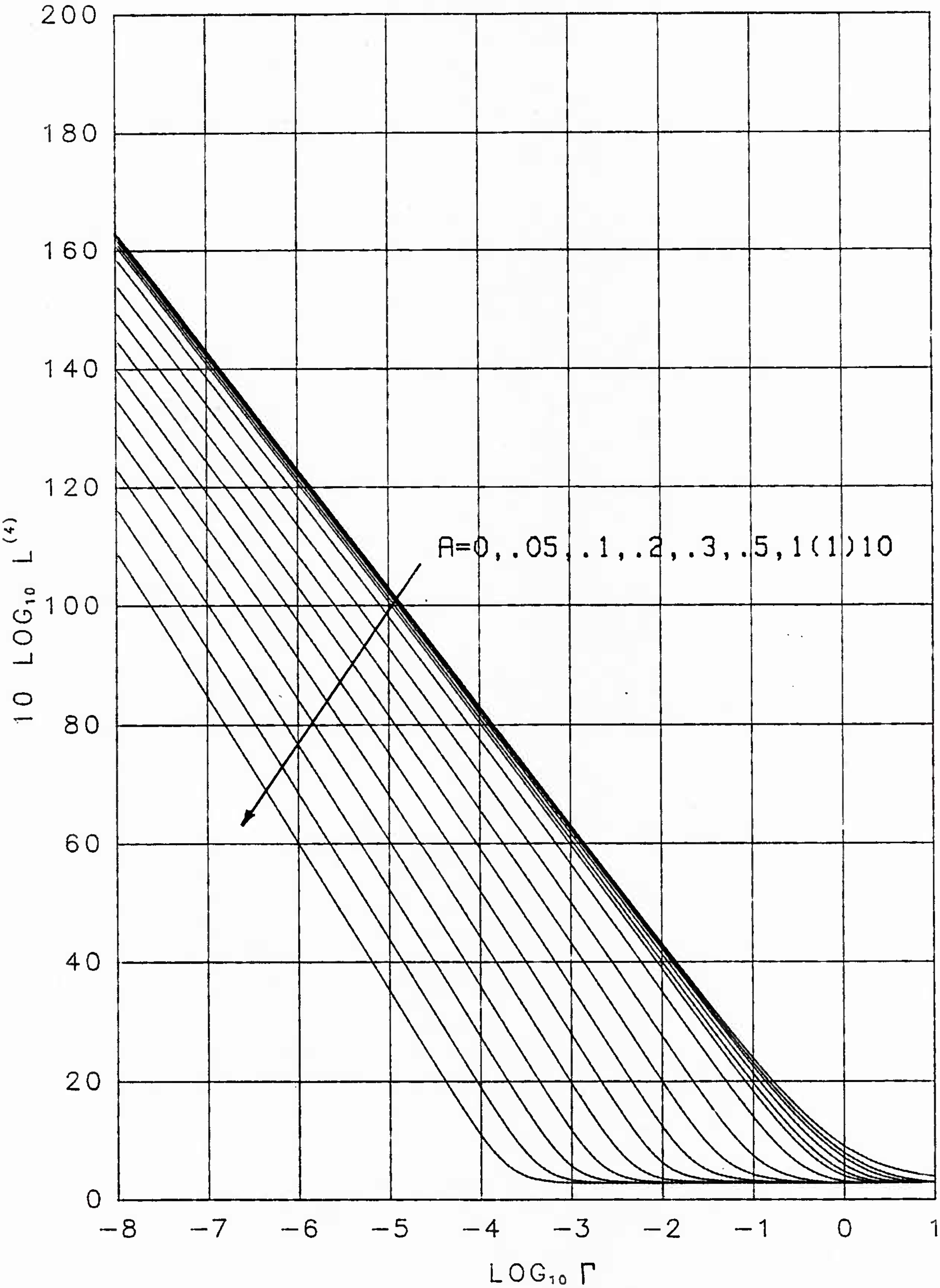

FIGURE 5.10 $L^{(4)}$ IN DB FOR $\alpha_0 = .75$

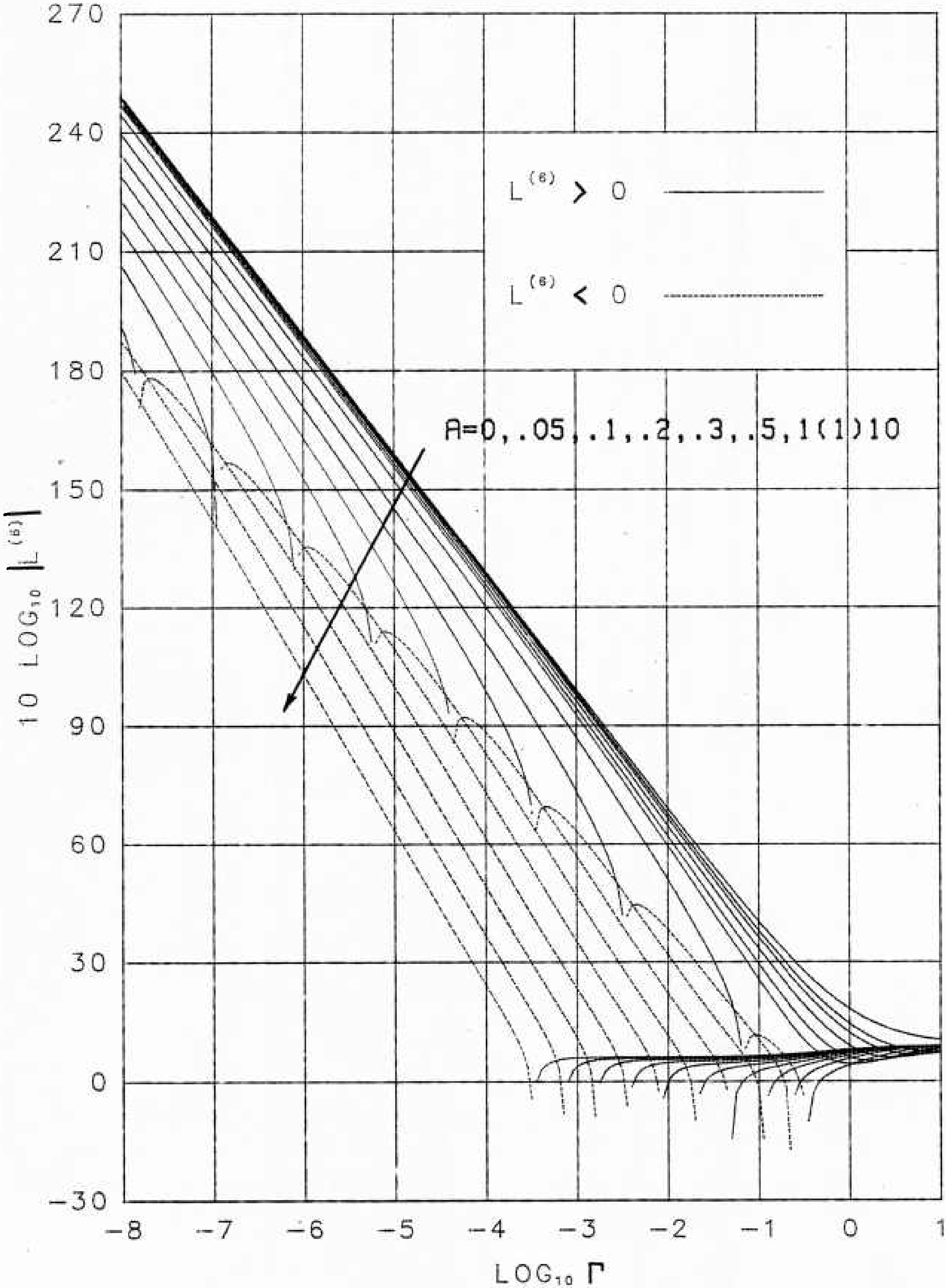

FIGURE 5.11 $L^{(6)}$ IN DB FOR $\alpha_0 = .75$

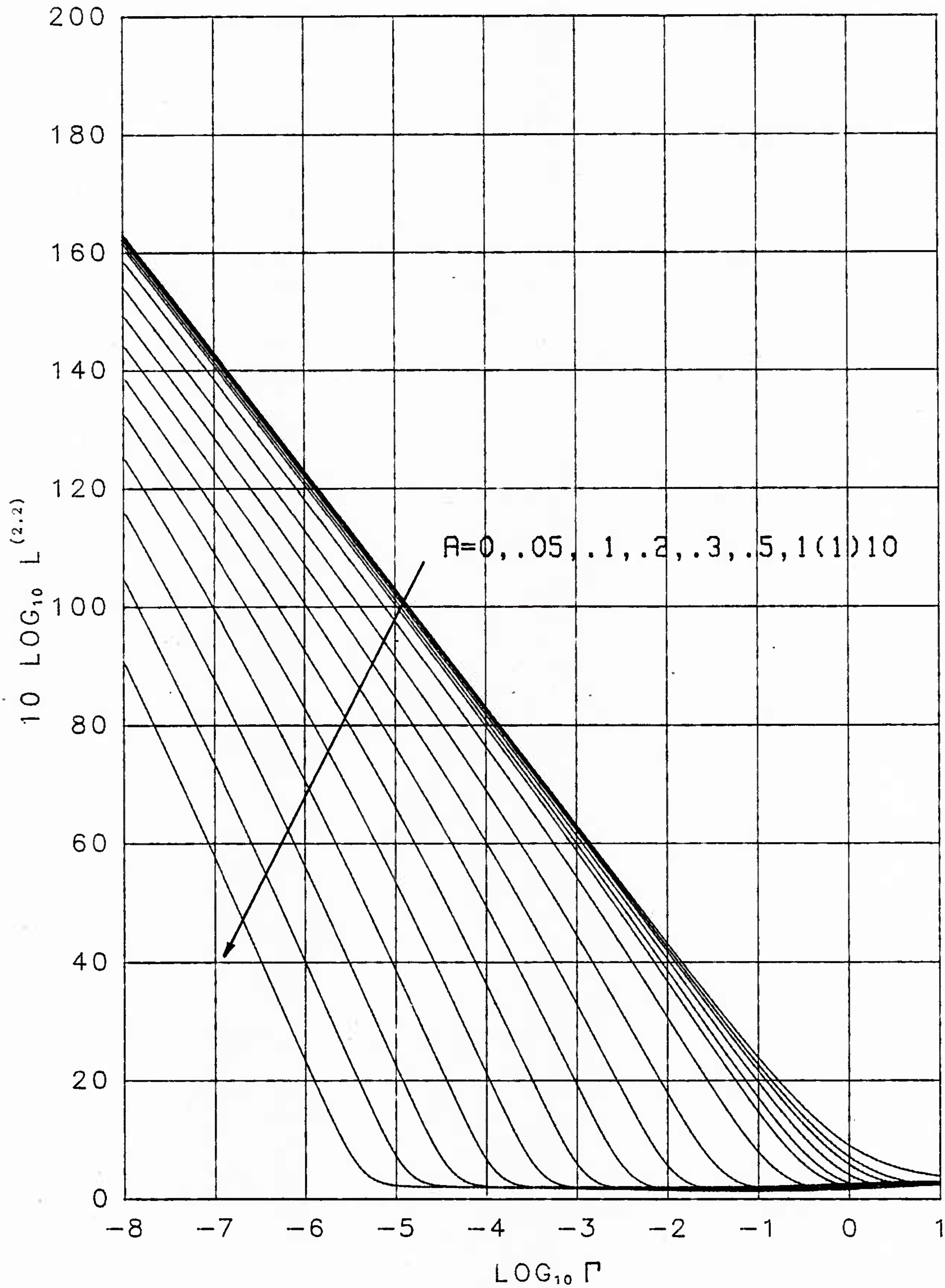

FIGURE 5.12 $L^{(2,2)}$ IN DB FOR $\alpha_0 = .75$

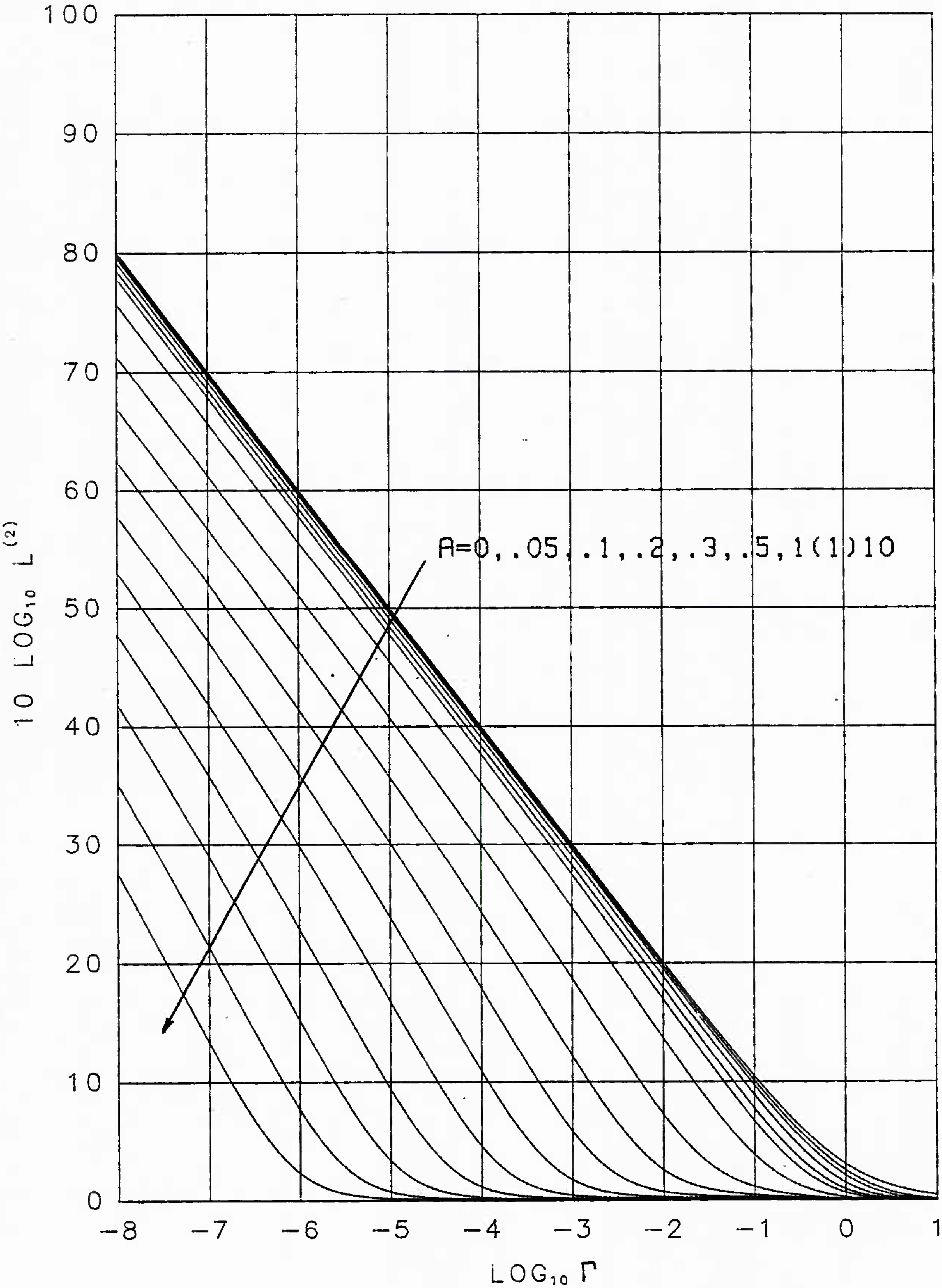

FIGURE 5.13 $L^{(2)}$ IN DB FOR $\alpha_0 = 1$

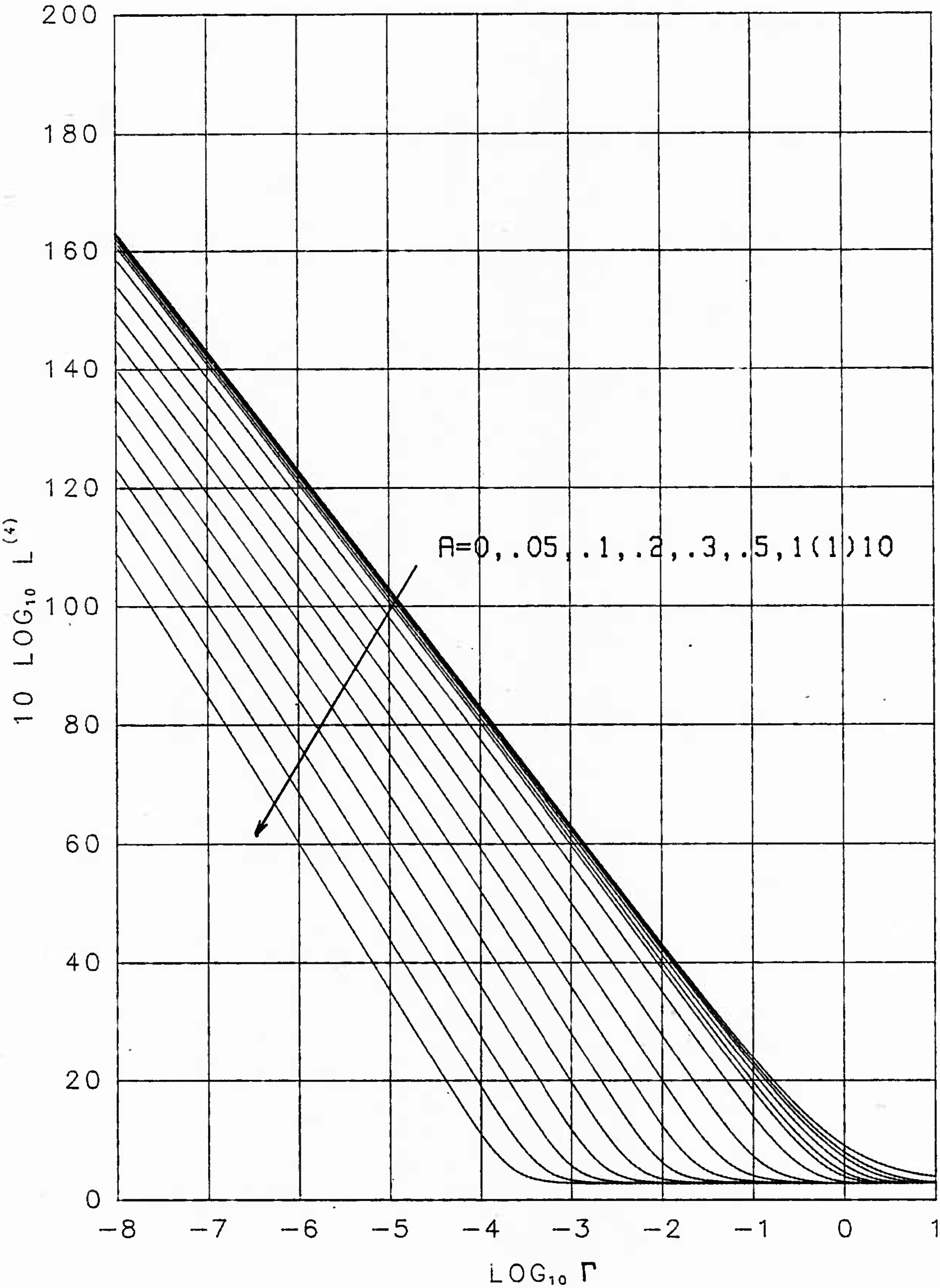

FIGURE 5.14 $L^{(4)}$ IN DB FOR $\alpha_0 = 1$

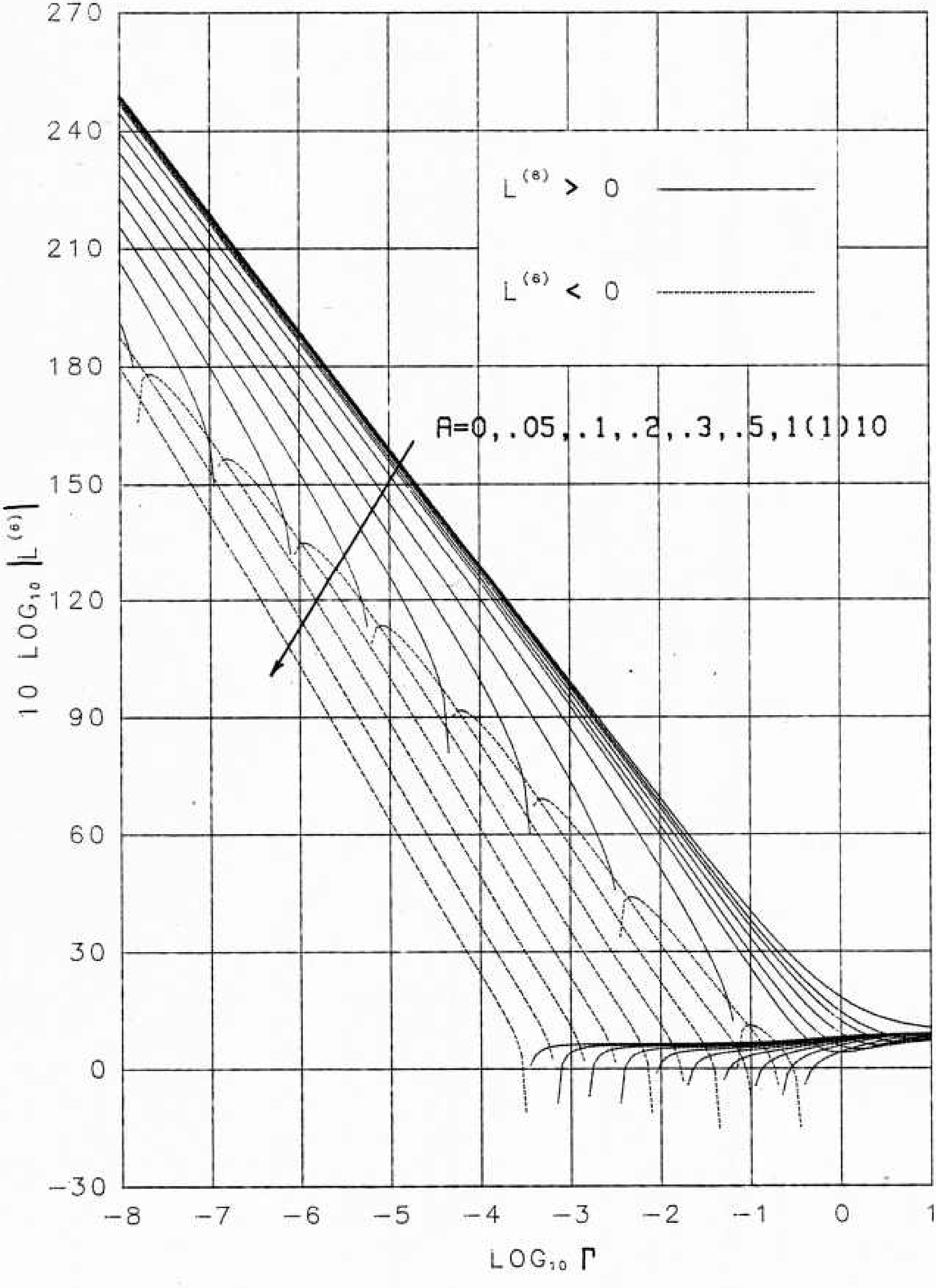

FIGURE 5.15 $L^{(6)}$ IN DB FOR $\alpha_0 = 1$

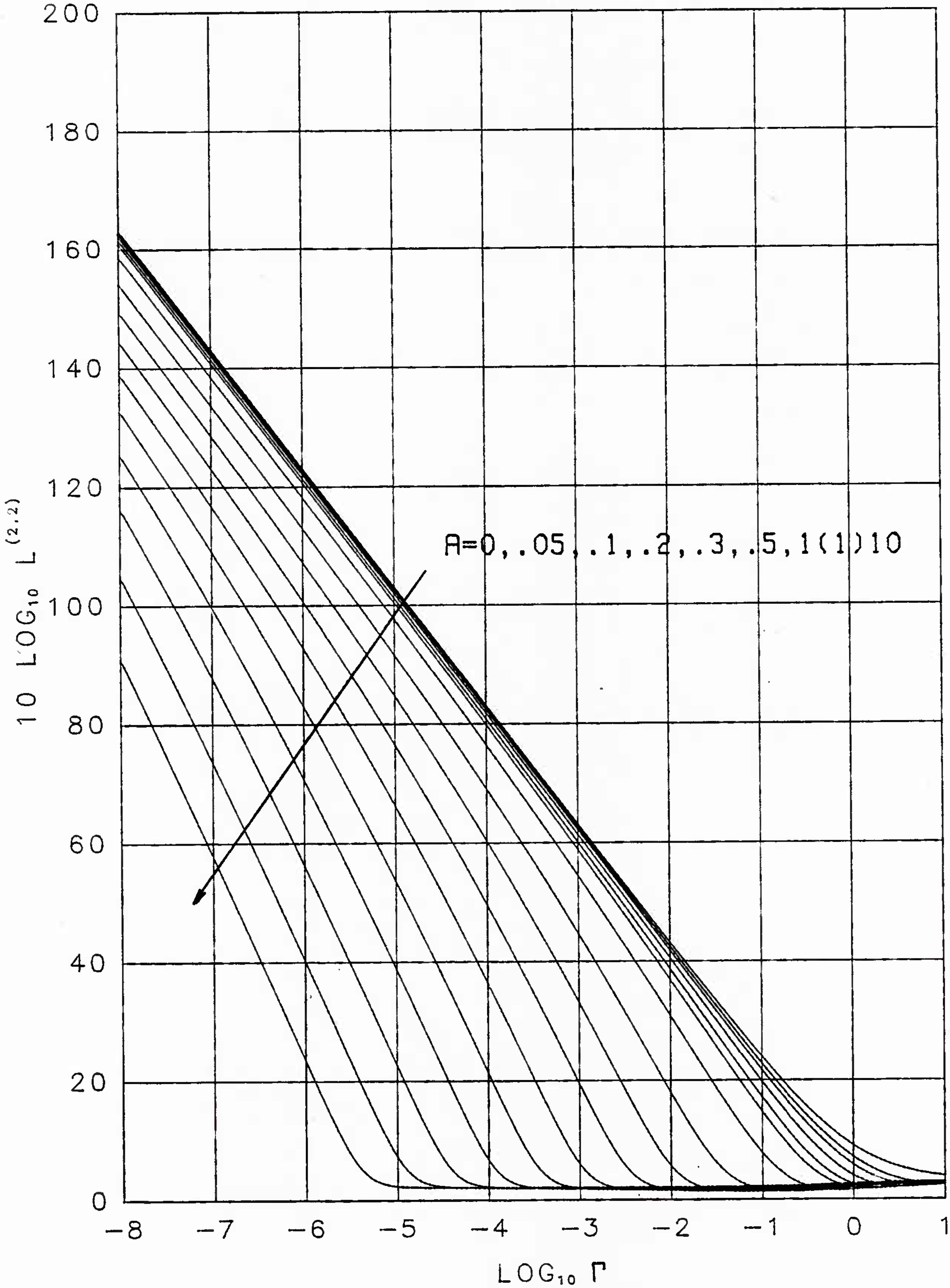

FIGURE 5.16 $L^{(2,2)}$ IN DB FOR $\alpha_0 = 1$

6. CONCLUDING REMARKS

An efficient technique for evaluation of the probability density function and associated statistics $L^{(k)}$ has been developed which takes maximum advantage of the speed of the FFT. Accuracy in the final results has been retained by the use of dense function sampling and large-size FFTs. The starting point for the series of calculations, namely the fundamental characteristic function, has to be evaluated very accurately, and has been achieved by expressing it as the difference of two error functions which are easily evaluated and which decay exponentially to zero for large arguments.

Alternative forms for the associated statistics have been derived which are useful in their own right, and which furnish useful numerical checks on the accuracy of the various approximations which have to be adopted. Extensions to higher-order associated statistics have also been presented.

For the more general quasi-canonical model, i.e., not restricted to $\mu = 0$ and $\gamma = 2$, a variety of useful forms for the fundamental characteristic function has been presented in terms of incomplete Gamma functions. Some forms are more useful for large or small arguments than others, and it will be necessary to switch between them accordingly. However, high accuracy should be achievable in all ranges, since the functions involved decay exponentially for large arguments. These equations, which were not employed in the current numerical studies, form a basis for future investigations into more general situations where $\mu \neq 0$ and/or $\gamma \neq 2$.

Figures 4.1-4.9 show typical probability densities for the general Class A noise model examined here, while Figures 4.10-4.18 illustrate the corresponding exceedance distributions (or APD's, as they are often called), for selected amounts of Gaussian noise background (Γ'), various degrees of "non-gaussianness" as measured by the overlap index (A), and for selected geometries (α_0). Here we recall that small Γ' represents a noise situation in which the non-gaussian component strongly dominates, while small A, $O(0.1\text{-}0.5)$, is typical of many nongaussian physical processes. Large values of α_0, say $O(0.75)$, are associated with "approximately" canonical noise models, while smaller values ($O(0.25)$ here) are typical of source distributions which are becoming "quasi-canonical," as defined above in section 1. [See section 2.1 for specific analytical results.]

A few general observations regarding the form of the pdf's and exceedance distributions may be made:

1. Increasing Γ' leads to larger amplitudes (u) at which the characteristic "jump" (i.e., comparative constancy of the pdf and APD with amplitude) occurs, with "jumps" of smaller extent (in u).

2. Increasing Γ', however, shows negligible change in the "tails" of both the pdf and APD, where u is large.

3. For given values of Γ' and α_0, increasing the overlap index shifts the level, i.e., magnitude of the pdf and APD, to larger values, for the larger arguments (u). The reverse is true for the small amplitudes [$u < O(10^{-1})$], where the statistics are always effectively Gaussian.

4. Changing the source geometry from a thin annulus ($\alpha_0 \sim 0.75$) to a thicker one ($\alpha_0 \sim 0.25$) significantly affects the behavior of the pdf in both the "plateau", or "jump" region,and in the passage to large amplitudes, or tails of the distribution. The exceedance distribution (or APD), however, is mainly affected on the tails (i.e., large u), with smaller APD's as α_0 is increased, i.e., as the annulus becomes smaller.

These variations in the pdf and APD are typical. [Note, again, that for $\alpha_0 = 1$, the "strictly" canonical case applies, with values shown in the numerical tables here.]

In a similar fashion, one can make corresponding general observations about the associated statistics $L^{(2)}$, $L^{(4)}$, $L^{(6)}$, $L^{(2,2)}$, shown in Figures 5.1-5.16; cf. section 2.2. First, $L^{(2)}$, $L^{(4)}$, $L^{(2,2)}$ are necessarily positive, while $L^{(6)}$ can be negative. In addition, we note the following:

5. $L^{(2)}$ decreases with increasing Γ', reaching the Gaussian limit $L^{(2)} = 1$ when $\Gamma' \to \infty$, i.e., no nongaussian component. $L^{(2)}$ also

decreases with increasing overlap index A, as expected, since then the noise becomes relatively less Gaussian; i.e., large A means an approach to a Gaussian pdf. Finally, the effects of extending the domain of the interfering sources, e.g., smaller α_0, are very small and, indeed, are practically ignorable.

6. Similar behavior is exhibited by $L^{(4)}$, which is seen to be almost a factor 2 (in dB) larger than the corresponding $L^{(2)}$. [As $\Gamma' \to \infty$, however, $L^{(4)} \to 2$ (or 3 dB), rather than $L^{(2)} \to 1$ (or 0 dB).]

7. $L^{(6)}$ can be negative, for all (finite) values of A. Smaller A leads to smaller magnitudes of $L^{(6)}$, while increasing Γ'(an approach to a more Gaussian noise) eventually leads to smaller, but positive values of $L^{(6)}$. For small A, $L^{(6)}$ is approximately a factor 3 (in dB) larger than $L^{(2)}$. Increasing α_0, i.e., decreasing the annulus of the source distribution, noticeably modifies the behavior of $L^{(6)}$ for large A, i.e., $A \geq O(1)$, but has little effect for small values of A.

8. Like $L^{(2)}$ and $L^{(4)}$, $L^{(2,2)}$ is positive and behaves similarly with changes in A and Γ'. Moreover, there is only very slight variation with the source domain (α_0), as for $L^{(2)}$, $L^{(4)}$ above. $L^{(2,2)}$ and $L^{(4)}$ are close (in dB) for $A \lesssim 2.0$, but $L^{(2,2)}$ becomes noticeably smaller for $A > 2.0$.

From the above, a major observation, noticed in earlier studies [4] and confirmed here, is that $L^{(2)}$, $L^{(4)}$, $L^{(2,2)}$ are quite insensitive to source distribution, i.e., variations in α_0, so that calculations based on the limiting case $\alpha_0 = 1$ ("strictly" canonical Class A model) are practically useable for $\alpha_0 < 1$, even for very small α_0. <u>This means, as far as $L^{(2)}$, $L^{(4)}$, $L^{(2,2)}$ are concerned, that these quantities for $\alpha_0 = 1$ are practically equivalent for all $\alpha_0 < 1$ as well</u>. Accordingly, performance results, which are based primarily on $L^{(2)}$ and $L^{(4)}$ can use the $L^{(2)}$, $L^{(4)}$ values obtained in the strictly canonical cases. [Analytically and computationally, the case $\alpha_0 = 1$ is much simpler than those for which $\alpha_0 < 1$, as has been explicitly demonstrated in the preceeding sections.]

APPENDIX A.1. ASYMPTOTIC BEHAVIOR OF THE CHARACTERISTIC FUNCTION AT THE ORIGIN

From (3.1) and (3.3), for x small, b is small and there follows

$$H_1(x^2)_{A-I} \sim \frac{g}{\gamma(1-\alpha_0^g)} \int_1^L du\, u^{-1-g/\gamma}(1-b^2u^2) = 1-\frac{1}{4}x^2 , \tag{A.1-1}$$

independent of μ, γ, α_0. Then (3.4) yields

$$H_2(\xi) \sim 1-\frac{1}{4}c^2\xi^2 \quad \text{as} \quad \xi \to 0, \tag{A.1-2}$$

where c^2 is given by (3.5) as

$$c^2 = \frac{2}{A(1+\Gamma')} \qquad (A > 0) . \tag{A.1-3}$$

Substitution of (A.1-2) in (3.8) yields, for the characteristic function of the normalized instantaneous amplitude,

$$F_2(\xi) \sim \exp\left[-A + A\left(1-\frac{\xi^2/2}{A(1+\Gamma')}\right) - \frac{\Gamma'}{1+\Gamma'}\frac{\xi^2}{2}\right] =$$

$$= \exp\left[-\frac{\xi^2}{2}\right] \sim 1-\frac{\xi^2}{2} \quad \text{as} \quad \xi \to 0. \tag{A.1-4}$$

Thus, the amplitude has zero mean and unit variance, for all μ, γ, α_0, Γ', A (>0).

APPENDIX A.2. INTEGRATION PROCEDURE FOR (3.27)

The generic form of the integrals in (3.27) is

$$\int_0^{+\infty} du\ G(u) \ , \tag{A.2-1}$$

where the general function G is as depicted in figure A.1-1. There is a sharp

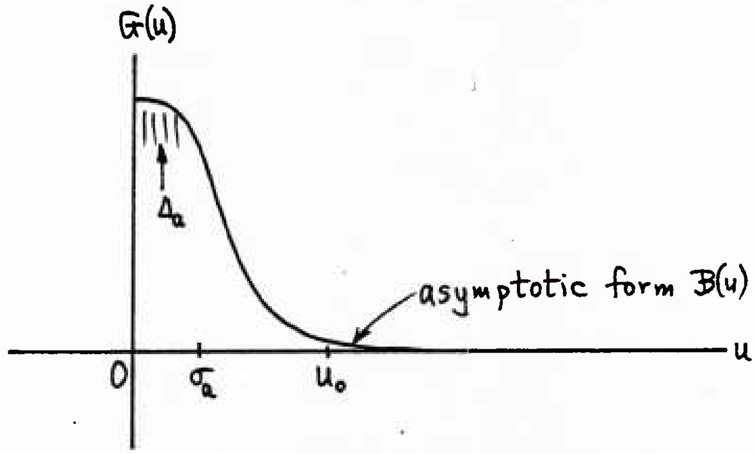

Figure A.1-1. Form of General Function G(u)

portion near the origin, followed by a gradual transition into the asymptotic region. In particular, let

σ_a = standard deviation of sharp portion (see (3.42));

u_o = point beyond which asymptotic form B(u) is valid;

Δ_a = sampling increment in sharp portion;

Δ_1 = FFT sampling increment in u at which B(u) is available. (A.2-2)

Then, according to (3.46)-(3.47), we have $\Delta_1 = 2\pi/(M\Delta)$. Also let $\Delta_a = \sigma_a F_a$, where F_a is a user-specified fraction of σ_a that guarantees sufficiently fine sampling of the sharp portion of G(u).

The procedure for the evaluation of (A.2-1) is then as follows: let $\Delta_o = \min(\Delta_1, \Delta_a)$; pick the smallest integer* N_o such that $u_o \equiv N_o\Delta_o \geq \sigma_a R_a$, where R_a is a user-specified multiple of σ_a that guarantees sufficient coverage of the tails of the sharp portion of G(u); and pick the smallest integer N_1 such that $N_1\Delta_1 \geq u_o$. Then we have the good approximation to (A.2-1),

$$\int_0^{+\infty} du\, G(u) \cong \int_0^{u_o} du\, G(u) + \int_{u_o}^{N_1\Delta_1} du\, B(u) + \int_{N_1\Delta_1}^{+\infty} du\, B(u)\ . \qquad \text{(A.2-3)}$$

But

$$\int_0^{u_o} du\, G(u) \cong \Delta_o \sum_{n=0}^{N_o} \varepsilon_n\, G(n\Delta_o)\ ,$$

$$\int_{u_o}^{N_1\Delta_1} du\, B(u) \cong \Delta_1 \left[\frac{1}{2} R^2\, B\big((N_1-1)\Delta_1\big) + \left(R - \frac{1}{2}R^2\right) B(N_1\Delta_1)\right]\ ,$$

$$\int_{N_1\Delta_1}^{+\infty} du\, B(u) \cong \Delta_1 \sum_{n=N_1}^{+\infty} \tilde{\varepsilon}_n\, B(n\Delta_1)\ , \qquad \text{(A.2-4)}$$

where we have used Simpson's integration rule for all three integrals, and defined weight sequences

$$\left\{\varepsilon_n\right\}_0^{N_o} = \frac{1}{3}\left\{1,4,2,4,\ \ldots\ ,4,2,4,1\right\}\ ,$$

$$\left\{\tilde{\varepsilon}_n\right\}_{N_1}^{+\infty} = \frac{1}{3}\left\{1,4,2,4,2,\ \ldots\right\}, \qquad \text{(A.2-5)}$$

---

*N_o must be even to use Simpson's rule of integration.

and defined the ratio

$$R = \frac{N_1 \Delta_1 - u_o}{\Delta_1} = N_1 - \frac{u_o}{\Delta_1} . \tag{A.2-6}$$

The final approximation to (A.2-3) is afforded by the sum of the three terms in (A.2-4). The $\{B(n\Delta_1)\}$ terms are given in terms of the FFT outputs in (3.47).

SAMPLING INCREMENT FOR $f_b(\xi)$

A crucial selection above is that for sampling increment Δ in (3.44) et seq. From (A.1-2) and (A.1-3), we have

$$H_2(\xi) \sim 1 - \frac{\xi^2/2}{A(1+\Gamma)} \quad \text{as } \xi \to 0. \tag{A.2-7}$$

Therefore, by reference to (3.41), letting $E = \exp(-A)$, we get

$$\exp\left[AH_2(\xi)\right] - 1 \sim E^{-1} - 1 - E^{-1}\frac{\xi^2/2}{1+\Gamma} \sim \left(E^{-1}-1\right)\exp\left[-\frac{E^{-1}}{E^{-1}-1}\,\frac{\xi^2/2}{1+\Gamma}\right] , \tag{A.2-8}$$

and

$$f_b(\xi) \sim (1-E)\exp\left[-\frac{1+(1-E)\Gamma}{(1-E)(1+\Gamma)}\,\frac{\xi^2}{2}\right] \quad \text{as } \xi \to 0. \tag{A.2-9}$$

Therefore, Δ should be chosen proportional to

$$\left[\frac{(1-E)(1+\Gamma)}{1+(1-E)\Gamma}\right]^{1/2} , \tag{A.2-10}$$

since $f_b(\xi)$ is the sharp portion of $f(\xi)$ in the ξ-domain.

APPENDIX A.3. MONOTONICITY OF $p_b(u)$

The remainder characteristic function is given in (3.41) as

$$f_b(\xi) = \exp\left[-A - \frac{\Gamma}{1+\Gamma}\frac{\xi^2}{2}\right]\left\{\exp\left[A\ H_2(\xi)\right] - 1\right\} =$$

$$= \exp\left[-A - \frac{\Gamma}{1+\Gamma}\frac{\xi^2}{2}\right]\sum_{n=1}^{+\infty}\frac{1}{n!}A^n H_2^n(\xi) . \qquad \text{(A.3-1)}$$

Also, H_2 is available from (3.4) as

$$H_2(\xi) = \frac{g}{\gamma(1-\alpha_o^g)}\int_1^L du\ u^{-1-g/\gamma}\exp(-\xi^2 c_3 u^2) =$$

$$\equiv c_o\int_1^L du\ u^{-v}\exp(-\xi^2 c_3 u^2). \qquad \text{(A.3-2)}$$

Substitution of (A.3-2) in (A.3-1) yields

$$f_b(\xi) = \exp\left[-A - \frac{\Gamma}{1+\Gamma}\frac{\xi^2}{2}\right]\sum_{n=1}^{+\infty}\frac{1}{n!}(A\ c_o)^n$$

$$* \int_1^L\!\!\cdots\!\!\int du_1\ldots du_n\ (u_1\ldots u_n)^{-v}\exp\left[-\xi^2 c_3(u_1^2+\ldots+u_n^2)\right] . \qquad \text{(A.3-3)}$$

The corresponding probability density function is, from (3.43),

$$p_b(u) = \exp(-A)\sum_{n=1}^{+\infty}\frac{1}{n!}(A\ c_o)^n\int_1^L\!\!\cdots\!\!\int du_1\ldots du_n\ (u_1\ldots u_n)^{-v}$$

$$* \frac{1}{2\pi}\int_{-\infty}^{+\infty} d\xi\ \exp\left[-iu\xi - \xi^2 c_3(u_1^2+\ldots+u_n^2) - \frac{\Gamma}{1+\Gamma}\frac{\xi^2}{2}\right]$$

$$= \exp(-A)\sum_{n=1}^{+\infty}\frac{1}{n!}(A\ c_o)^n\int_1^L\!\!\cdots\!\!\int du_1\ldots du_n\ (u_1\ldots u_n)^{-v}$$

$$* \left(2\pi\sigma_n^2\right)^{-1/2}\exp\left(-\frac{u^2}{2\sigma_n^2}\right), \qquad \text{(A.3-4)}$$

where we have defined

$$\sigma_n^2 = \frac{\Gamma}{1+\Gamma} + 2c_3\ (u_1^2+\ldots+u_n^2). \tag{A.3-5}$$

There follows from (A.3-4),

$$p_b'(u) = \exp(-A) \sum_{n=1}^{+\infty} \frac{1}{n!}\ (A\ c_o)^n \int_1^L\!\!\ldots\!\!\int du_1\ldots du_n\ (u_1\ldots u_n)^{-\upsilon}$$
$$* \left(2\pi\sigma_n^2\right)^{-1/2} \left(\frac{-u}{\sigma_n^2}\right) \exp\left(-\ \frac{u^2}{2\sigma_n^2}\right). \tag{A.3-6}$$

Factoring out the -u term, everything else is positive. Therefore,

$$p_b'(u) < 0 \text{ for } u > 0. \tag{A.3-7}$$

That is, $p_b(u)$ decays monotonically for $u > 0$. Also, $p_b(u)$ is even in u, as may be easily seen from (A.3-4).

Since $p_a(u)$ obviously decays monotonically for $u > 0$, from (3.42), then so also must the total probability density function $p(u) = p_a(u) + p_b(u)$. This is important in determining when to terminate the infinite integrals encountered in (3.27).

APPENDIX A.4. PROGRAMS FOR PERFORMANCE PARAMETERS

The following listings are programs written in FORTRAN 77 for the Digital Equipment Corporation VAX computer, running the VMS operating systems.

The numerical considerations for the calculation of the performance parameters have been detailed in section 3. The performance parameters are computed as defined in section 3.4. The alternative forms for the performance parameters given in section 3.5 were additionally computed and used as checks. For the case $\alpha_0 = 0$, the methodology suggested in section 3.6 was utilized.

```
      PROGRAM QUASI
      IMPLICIT REAL*8 (A-H,O-Z)
      REAL*8 L2,L4,L6,L22,L22A,L2A
      REAL*8 K2,K4,K6,K22,K22A,K2A
      CHARACTER*2 ARC
      CHARACTER*1 A0RC
      CHARACTER*8 CAME
      DIMENSION X(0:4096),Y(0:4096),FB(0:4096)
      DIMENSION PB(0:4096),PB1(0:4096),PB2(0:4096)
      DIMENSION ARR(15),ARC(15),A0RC(4)
      DATA ARR /0.05D0,0.1D0,0.2D0,0.35D0,0.5D0,
     1 1.0D00,2.0D00,3.0D00,4.0D00,5.0D00,6.0D00,7.0D00,
     2 8.0D00,9.0D00,1.0D1/
      DATA ARC /'1','2','3','4','5','6','7','8','9',
     1 '10','11','12','13','14','15'/
      DATA A0RC /'A','B','C','D'/


      PI=4.0D0*ATAN(1.0D0)
      ISN=-1
C     SET SIZE OF FFT
      MF=8192
C     SET SAMPLING FRACTION OF SIGMAa
      FA=0.2D0
C     SET NUMBER OF SIGMAa COVERED
      RA=12.0D0
C     SET TOLERANCE ON CHAR. FNCTN Fb
      TOLCF=1.0D-16
C     SET TOLERANCE ON PDF p
      TOLPDF=1.0D-10

      M2=MF/2

      DO 7000 IA0=1,4
      A0=FLOAT(IA0)/4.0D0
      DO 6000 IA=1,15
      A=ARR(IA)
      CAME='Q'//A0RC(IA0)//ARC(IA)//'.DAT'
      OPEN (UNIT=1,FILE=CAME,ACCESS='DIRECT',RECL=6*2,SHARED,
     1  ASSOCIATEVARIABLE=IB,TYPE='NEW')
      G=1.0D-8
      DO 5000 IG=1,181
      IB=IG
      D=1.0D0-EXP(-A)
C     INCREMENT IN XI
      DELTA=0.25D0*SQRT(D*(1.0D0+G)/(1.0D0+D*G))
      DO 1500 I=0,M2
      X(I)=0.0D0
      Y(I)=0.0D0
1500  CONTINUE
      DEL1=2.0D0*PI/(DFLOAT(MF)*DELTA)
      C1=G/(1.0D0+G)
      C2=1.0D0/(A*(1.0D0+G))
      IF (A0.EQ.1.0D0) GO TO 1700
      T2=SQRT(2.0D0*PI)
      A2=A0*A0
      T0=1.0D0/(1.0D0-A2)
      T3=SQRT(C2)
```

```
      C3=T3*A0
      C4=T3/A0
1700  CONTINUE
      DO 2500 NS=0,M2
      XI=DELTA*DFLOAT(NS)
      X2=0.5D0*XI*XI
      IF (A0.EQ.1.0D0) GO TO 2200
      U3=C3*XI
      U4=C4*XI
      Q3=EXP(-0.5D0*U3*U3)-T2*U3*PHI(-U3)
      Q4=EXP(-0.5D0*U4*U4)-T2*U4*PHI(-U4)
C     QUASI-CANONICAL H1
      H1=T0*(Q3-A2*Q4)
      GO TO 2300
2200  CONTINUE
C     CANONICAL H1
      H1=EXP(-X2*C2)
2300  CONTINUE
C     REMAINDER CHAR. FNCTN Fb
      FBB=EXP(-A-C1*X2)*EX1(A*H1)
      FB(NS)=FBB
      IF (FBB.LT.TOLCF) GO TO 2700
2500  CONTINUE
      WRITE (6,2600)A,G,A0,FBB
      WRITE (7,2600)A,G,A0,FBB
2600  FORMAT (' CHAR. FN. FB EXCEEDED TOLCF AT A,G,A0,FBB ',4E10.3)
2700  CONTINUE
      N1=MIN(NS,M2)
      X(0)=FB(0)*0.5D0
      DO 2730 NS=2,N1,2
      X(NS/2)=FB(NS)
2730  CONTINUE
      DO 2740 NS=1,N1,2
      Y((NS-1)/2)=FB(NS)
2740  CONTINUE
      CALL FFTD2Z (MF,X,Y,ISN)
      DO 2800 I=0,M2
      PB(I)=X(I)*(DELTA/PI)
      X(I)=0.0
      Y(I)=0.0
2800  CONTINUE
      DO 2825 NS=2,N1,2
      X(NS/2)=FB(NS)*DFLOAT(NS)
2825  CONTINUE
      DO 2835 NS=1,N1,2
      Y((NS-1)/2)=FB(NS)*DFLOAT(NS)
2835  CONTINUE
      CALL FFTD2Z (MF,X,Y,ISN)
      DO 2900 I=0,M2
      PB1(I)=Y(I)*(DELTA*DELTA/PI)
      X(I)=0.0D0
      Y(I)=0.0D0
2900  CONTINUE
      DO 2925 NS=2,N1,2
      X(NS/2)=FB(NS)*DFLOAT(NS*NS)
2925  CONTINUE
      DO 2935 NS=1,N1,2
      Y((NS-1)/2)=FB(NS)*DFLOAT(NS*NS)
```

```
2935      CONTINUE
          CALL FFTD2Z (MF,X,Y,ISN)
          DO 3000 I=0,M2
          PB2(I)=X(I)*(-DELTA*DELTA*DELTA/PI)
3000      CONTINUE
          L2=0.0D0
          L2A=0.0D0
          L4=0.0D0
          L6=0.0D0
          L22=0.0D0
          L22A=0.0D0
          K2=0.0D0
          K2A=0.0D0
          K4=0.0D0
          K6=0.0D0
          K22=0.0D0
          K22A=0.0D0
          F1=1.0D0/C1
          F2=F1*F1
          SIGA=SQRT(C1)
          SA=EXP(-A)/SQRT(2.0D0*PI*C1)
          DELA=SIGA*FA
          DEL0=MIN(DEL1,DELA)
          RATIO=SIGA*RA/DEL0
          N0=INT(RATIO)
          IF (DFLOAT(N0).LT.RATIO) N0=N0+1
          N0=2*INT((N0+1)/2)
          U0=DEL0*DFLOAT(N0)
          RATIO=U0/DEL1
          N1=INT(RATIO)
          IF (DFLOAT(N1).LT.RATIO) N1=N1+1
          RS=DFLOAT(N1)-RATIO
          DO 3500 NS=0,N0
          U=DEL0*DFLOAT(NS)
          PA=SA*EXP(-0.5D0*U*U*F1)
          PA1=-PA*U*F1
          PA2=PA*(U*U-C1)*F2
          RATIO=U/DEL1
          MC=INT(RATIO)
          IF ((RATIO-DFLOAT(MC)).GT.0.5D0) MC=MC+1
          S1=RATIO-DFLOAT(MC)
          S2=S1*S1
          ML=ABS(MC-1)
          MR=MC+1
          FL=0.5D0*(S2-S1)
          FC=1.0D0-S2
          FR=0.5D0*(S2+S1)
          PBB=FL*PB(ML)+FC*PB(MC)+FR*PB(MR)
          TMC=1.0D0
          IF ((MC-1).LT.0) TMC=-1.0D0
          PBB1=FL*TMC*PB1(ML)+FC*PB1(MC)+FR*PB1(MR)
          PBB2=FL*PB2(ML)+FC*PB2(MC)+FR*PB2(MR)
          P=PA+PBB
          IF (P.LT.TOLPDF) GO TO 3600
          P1=PA1+PBB1
          P2=PA2+PBB2
          R1=P1/P
          R2=P2/P
```

```
      T2=R1*P1
      T2A=P2*LOG(P)
      T4=R2*P2
      T6=T4*R2
      T22=T2*R2
      T22A=T2*R1*R1
      F=2.0D0
      NMOD=MOD(NS,2)
      IF (NMOD.EQ.1) F=4.0D0
      IF (NS.EQ.0.OR.NS.EQ.NO) F=1.0D0
      L2=L2+T2*F
      L2A=L2A+T2A*F
      L4=L4+T4*F
      L6=L6+T6*F
      L22=L22+T22*F
      L22A=L22A+T22A*F
3500  CONTINUE
3600  CONTINUE
      RT=1.0D0+RS
      FL=RT*RT*(0.5D0*RS-0.25D0)
      FC=RT*RT*(2.0D0-RS)
      FR=RT*(1.25D0-1.25D0*RS+0.5D0*RS*RS)
      KMOD=MOD(N1+1,2)
      DO 3900 NS=N1-1,M2
      P=PB(NS)
      IF (P.LT.TOLPDF) GO TO 4000
      P1=PB1(NS)
      P2=PB2(NS)
      R1=P1/P
      R2=P2/P
      T2=R1*P1
      T2A=P2*LOG(P)
      T4=R2*P2
      T6=T4*R2
      T22=T2*R2
      T22A=T2*R1*R1
      IF (NS.GT.N1+1) GO TO 3700
      IF (NS.EQ.N1-1) F=FL
      IF (NS.EQ.N1) F=FC
      IF (NS.EQ.N1+1) F=FR+1
      GO TO 3800
3700  CONTINUE
      F=4.0D0
      NMOD=MOD(NS,2)
      IF(NMOD.EQ.KMOD) F=2.0D0
3800  CONTINUE
      K2=K2+T2*F
      K2A=K2A+T2A*F
      K4=K4+T4*F
      K6=K6+T6*F
      K22=K22+T22*F
      K22A=K22A+T22A*F
3900  CONTINUE
      WRITE (6,3950)A,G,A0,P
      WRITE (7,3950)A,G,A0,P
3950  FORMAT (' PDF p EXCEEDED TOLPDF AT A,G,A0,P ',4E10.3)
4000  CONTINUE
      D03=DEL0/3.0D0
```

```
      D13=DEL1/3.0D0
      L2=(L2*D03+K2*D13)*2.0D0
      L2A=-(L2A*D03+K2A*D13)*2.0D0
      L4=(L4*D03+K4*D13)*2.0D0
      L6=(L6*D03+K6*D13)*2.0D0
      L22=(L22*D03+K22*D13)*2.0D0
      L22A=(L22A*D03+K22A*D13)*4.0D0/3.0D0
      G=G*1.0D1**0.05D0
      WRITE (1'IB) L2,L2A,L4,L6,L22,L22A
5000  CONTINUE
      CLOSE (UNIT=1)
6000  CONTINUE
7000  CONTINUE
      OPEN (UNIT=1,FILE='Q0.DAT',ACCESS='DIRECT',RECL=6*2,SHARED,
     1 ASSOCIATEVARIABLE=IB,TYPE='NEW')
      G=1.0D-8
      DO 8000 IG=1,181
      IB=IG
      L2=1.0D0+1.0D0/G
      L2A=L2
      L4=2.0D0*L2*L2
      L6=4.0D0*L2*L4
      L22=L4
      L22A=L4
      WRITE (1'IB)L2,L2A,L4,L6,L22,L22A
      G=G*1.0D1**0.05D0
8000  CONTINUE
      CLOSE (UNIT=1)
9000  CONTINUE
      STOP
      END
```

```
      REAL*8 FUNCTION EX1(X)
      IMPLICIT REAL*8 (A-H,O-Z)
      IF (X.LE.1.0D0) GO TO 1000
      EX1=EXP(X)-1.0D0
      RETURN
1000  CONTINUE
      T=X
      EX1=X
      DO 2000 N=2,15
      T=T*X/DFLOAT(N)
      EX1=EX1+T
      IF (T.LE.5.0D-13*EX1) RETURN
2000  CONTINUE
      END
```

```
      REAL*8 FUNCTION PHI(X)
      IMPLICIT REAL*8 (A-H,O-Z)
      IF (ABS(X).GT.5.14D00) GO TO 1000
      A=0.282842712475D0*X
      C=COS(A)
      S=SIN(A)
      B=C+C
      A=B*C-1.0D0
      C=A*(1.2536751D-18+B*7.10005D-20+A*7.4517D-21)
      C=A*(1.533423425D-16+B*1.01649277D-17+C)
      C=A*(1.36760444757D-14+B*1.0601364636D-15+C)
      C=A*(8.89786526722D-13+B*8.06068838945D-14+C)
      C=A*(4.22616144318D-11+B*4.46968229249D-12+C)
      C=A*(1.46660614234D-9+B*1.80848587810D-10+C)
      C=A*(3.72252349369D-8+B*5.34275027603D-9+C)
      C=A*(6.91927520325D-7+B*1.15330990944D-7+C)
      C=A*(9.43281169838D-6+B*1.82066316364D-6+C)
      C=A*(9.44909268810D-5+B*2.10404583073D-5+C)
      C=A*(6.97193792408D-4+B*1.79228016255D-4+C)
      C=A*(3.80150767985D-3+B*1.10860645342D-3+C)
      C=A*(1.53985726157D-2+B*5.07906961220D-3+C)
      C=A*(4.67755234325D-2+B*1.72439625887D-2+C)
      C=A*(1.08630245023D-1+B*4.39773381941D-2+C)
      C=A*(2.01339747265D-1+B*8.69894549959D-2+C)
      C=A*(3.30501521917D-1+B*1.44227226362D-1+C)
      C=7.03225002744D-1+B*2.47255168140D-1+C
      PHI=0.5D0+4.50158158079D-2*X+0.5D0*S*C
      RETURN
 1000 CONTINUE
      PHI=1.0D0
      IF (X.GT.7.0D0) RETURN
      N=MAX(6,INT(6.9D1/ABS(X)),INT(5.25D2/(X*X)))+1
      A=1.0D0
      S=1.0D0
      B=1.0D0/X
      C=B*B
      DO 2000 J=1,N
      A=(1.0D0-J-J)*A*C
      S=S+A
 2000 CONTINUE
      PHI=0.398942280401D0*EXP(-0.5D0*X*X)*ABS(B)*S
      IF (X.GT.0.0) PHI=1.0D0-PHI
      RETURN
      END
```

```
      SUBROUTINE FFTR (N,X,Y,ISN)
C     ISN=-1 FOR FORWARD FFT
C     ISN=1 FOR INVERSE FFT-FACTOR 1/N NOT PERFORMED
C     X=DBL PRCN ARRAY FOR REAL PART OF DATA
C     Y=DBL PRCN ARRAY FOR IMAG PART OF DATA
C     N= SIZE OF FFT <= 4096, MUST BE A POWER OF 2


      IMPLICIT REAL*8 (A-H,O-Z)
C     X,Y MUST BE SIZE N
C     CC MUST BE SIZE N/4+1
C     **** FOLLOWING STATEMENT FOR 4096 PT FFT ****
      DIMENSION X(4096),Y(4096),CC(1025)
      DIMENSION L(12)
      EQUIVALENCE (L12,L(1)),(L11,L(2)),(L10,L(3)),(L9,L(4)),
     1 (L8,L(5)),(L7,L(6)),(L6,L(7)),(L5,L(8)),(L4,L(9)),
     2 (L3,L(10)),(L2,L(11)),(L1,L(12))
      DATA ICOUNT/0/

      IF(ICOUNT.GT.0) GO TO 200
      ICOUNT=ICOUNT+1
      ND4P1=N/4+1
      SCL=8.0D0*ATAN(1.0D0)/DFLOAT(N)
      DO 100 I=1,ND4P1
      ARG=DFLOAT(I-1)*SCL
      CC(I)=DCOS(ARG)
100   CONTINUE
      M=INT(1.4427D0*LOG(DFLOAT(N))+0.5D0)
      ND4=N/4
      ND4P2=ND4P1+1
      ND2P2=ND4+ND4P2
200   CONTINUE
      DO 800 LO=1,M
      LMX=2**(M-LO)
      LIX=2*LMX
      ISCL=N/LIX
      DO 800  LM=1,LMX
      IARG=(LM-1)*ISCL+1
      IF (IARG.LE.ND4P1) GO TO 400
      C=-CC(ND2P2-IARG)
      S=DFLOAT(ISN)*CC(IARG-ND4)
      GO TO 600
400   C=CC(IARG)
      S=DFLOAT(ISN)*CC(ND4P2-IARG)
600   DO 800 LI=LIX,N,LIX
      J1=LI-LIX+LM
      J2=J1+LMX
      T1=X(J1)-X(J2)
      T2=Y(J1)-Y(J2)
      X(J1)=X(J1)+X(J2)
      Y(J1)=Y(J1)+Y(J2)
      X(J2)=C*T1-S*T2
      Y(J2)=C*T2+S*T1
800   CONTINUE
```

```
C         PERFORM BIT REVERSAL

          DO 4000 J=1,12
          L(J)=1
          IF (J-M) 3100,3100,4000
3100      L(J)=2**(M+1-J)
4000      CONTINUE
          JN=1
          DO 6000 J1=1,L1
          DO 6000 J2=J1,L2,L1
          DO 6000 J3=J2,L3,L2
          DO 6000 J4=J3,L4,L3
          DO 6000 J5=J4,L5,L4
          DO 6000 J6=J5,L6,L5
          DO 6000 J7=J6,L7,L6
          DO 6000 J8=J7,L8,L7
          DO 6000 J9=J8,L9,L8
          DO 6000 J10=J9,L10,L9
          DO 6000 J11=J10,L11,L10
          DO 6000 JR=J11,L12,L11
          IF (JN-JR) 5100,5100,5200
5100      R=X(JN)
          X(JN)=X(JR)
          X(JR)=R
          FI=Y(JN)
          Y(JN)=Y(JR)
          Y(JR)=FI
5200      JN=JN+1
6000      CONTINUE
          RETURN
          END
```

```
      SUBROUTINE FFTD2Z (N,X,Y,ISN)
C     N-POINT FFT OF A REAL SEQUENCE VIA AN N/2 POINT COMPLEX FFT
C     INPUT: X(0),Y(0),X(1),Y(1),...,X(N/2-1),Y(N/2-1) X AND Y REAL
C     OUTPUT: X(0) TO X(N/2),Y(0) TO Y(N/2) X IS REAL PART Y IS IMAG PART
      IMPLICIT REAL*8 (A-H,O-Z)
      DIMENSION X(0:4096),Y(0:4096)
      DIMENSION C(1024),S(1024)
      DATA ICOUNT/0/
      IF (ICOUNT.GT.0) GO TO 500
      ICOUNT=ICOUNT+1
      PI=4.0D0*ATAN(1.0D0)
      N2=N/2
      N4=N/4
      N8=N/8
      F=2.0D0*PI/DFLOAT(N)
      DO 400 K=1,N8
      C(K)=COS(F*DFLOAT(K))
      S(K)=SIN(F*DFLOAT(K))
400   CONTINUE
500   CONTINUE
      CALL FFTR(N2,X,Y,ISN)
      X(N2)=X(0)-Y(0)
      X(0)=X(0)+Y(0)
      Y(0)=0.0D0
      Y(N2)=0.0D0
      Y(N4)=-Y(N4)
      DO 1000 K=1,N8
      J=N2-K
      XS=(X(K)+X(J))*0.5D0
      XD=(X(K)-X(J))*0.5D0
      YS=(Y(K)+Y(J))*0.5D0
      YD=(Y(K)-Y(J))*0.5D0
      T=XD*S(K)-YS*C(K)
      X(K)=XS-T
      X(J)=XS+T
      T=XD*C(K)+YS*S(K)
      Y(K)=YD-T
      Y(J)=-YD-T
      IF (K.EQ.N8) GO TO 1000
      L=N4+K
      J=N4-K
      XS=(X(L)+X(J))*0.5D0
      XD=(X(L)-X(J))*0.5D0
      YS=(Y(L)+Y(J))*0.5D0
      YD=(Y(L)-Y(J))*0.5D0
      T=XD*C(K)+YS*S(K)
      X(L)=XS-T
      X(J)=XS+T
      T=XD*S(K)-YS*C(K)
      Y(L)=YD+T
      Y(J)=-YD+T
1000  CONTINUE
      RETURN
      END
```

APPENDIX A.5. TABLES OF PERFORMANCE PARAMETERS

The values for the performance parameters are presented in a tabular format in this appendix. The performance parameters are given in terms of fundamental quantities Γ, α_0, and A. In particular, Γ takes on values from 10^{-8} thru 10^2; α_0 takes on the values 0, .25, .5, .75, 1; while A takes on the values .05, .1, .2, .35, .5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.951E+08	.951E+08	.951E+08	.951E+08	.951E+08
.158E-07	.600E+08	.600E+08	.600E+08	.600E+08	.600E+08
.251E-07	.379E+08	.379E+08	.379E+08	.379E+08	.379E+08
.398E-07	.239E+08	.239E+08	.239E+08	.239E+08	.239E+08
.631E-07	.151E+08	.151E+08	.151E+08	.151E+08	.151E+08
.100E-06	.951E+07	.951E+07	.951E+07	.951E+07	.951E+07
.158E-06	.600E+07	.600E+07	.600E+07	.600E+07	.600E+07
.251E-06	.379E+07	.379E+07	.379E+07	.379E+07	.379E+07
.398E-06	.239E+07	.239E+07	.239E+07	.239E+07	.239E+07
.631E-06	.151E+07	.151E+07	.151E+07	.151E+07	.151E+07
.100E-05	.951E+06	.951E+06	.951E+06	.951E+06	.951E+06
.158E-05	.600E+06	.600E+06	.600E+06	.600E+06	.600E+06
.251E-05	.379E+06	.378E+06	.378E+06	.378E+06	.379E+06
.398E-05	.239E+06	.239E+06	.239E+06	.239E+06	.239E+06
.631E-05	.151E+06	.151E+06	.151E+06	.151E+06	.151E+06
.100E-04	.950E+05	.950E+05	.950E+05	.950E+05	.950E+05
.158E-04	.600E+05	.599E+05	.599E+05	.600E+05	.600E+05
.251E-04	.378E+05	.378E+05	.378E+05	.378E+05	.378E+05
.398E-04	.239E+05	.238E+05	.238E+05	.239E+05	.239E+05
.631E-04	.150E+05	.150E+05	.150E+05	.150E+05	.150E+05
.100E-03	.949E+04	.947E+04	.949E+04	.949E+04	.949E+04
.158E-03	.599E+04	.597E+04	.598E+04	.598E+04	.599E+04
.251E-03	.377E+04	.376E+04	.377E+04	.377E+04	.377E+04
.398E-03	.238E+04	.237E+04	.238E+04	.238E+04	.238E+04
.631E-03	.150E+04	.149E+04	.150E+04	.150E+04	.150E+04
.100E-02	.946E+03	.941E+03	.945E+03	.946E+03	.946E+03
.158E-02	.597E+03	.593E+03	.596E+03	.597E+03	.597E+03
.251E-02	.376E+03	.374E+03	.376E+03	.376E+03	.376E+03
.398E-02	.237E+03	.235E+03	.237E+03	.237E+03	.237E+03
.631E-02	.150E+03	.148E+03	.149E+03	.150E+03	.150E+03
.100E-01	.946E+02	.935E+02	.943E+02	.945E+02	.946E+02
.158E-01	.598E+02	.590E+02	.596E+02	.598E+02	.598E+02
.251E-01	.380E+02	.374E+02	.378E+02	.379E+02	.380E+02
.398E-01	.242E+02	.238E+02	.241E+02	.242E+02	.242E+02
.631E-01	.155E+02	.152E+02	.155E+02	.155E+02	.155E+02
.100E+00	.101E+02	.989E+01	.100E+02	.101E+02	.101E+02
.158E+00	.666E+01	.654E+01	.662E+01	.665E+01	.666E+01
.251E+00	.450E+01	.445E+01	.448E+01	.450E+01	.450E+01
.398E+00	.315E+01	.314E+01	.314E+01	.315E+01	.315E+01
.631E+00	.230E+01	.232E+01	.230E+01	.230E+01	.230E+01
.100E+01	.177E+01	.181E+01	.178E+01	.177E+01	.177E+01
.158E+01	.144E+01	.149E+01	.145E+01	.144E+01	.144E+01
.251E+01	.124E+01	.129E+01	.125E+01	.124E+01	.124E+01
.398E+01	.112E+01	.117E+01	.113E+01	.112E+01	.112E+01
.631E+01	.105E+01	.110E+01	.107E+01	.105E+01	.105E+01
.100E+02	.102E+01	.105E+01	.103E+01	.102E+01	.102E+01

TABLE 1. VALUES OF L2 FOR A=.05

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.190E+17	.190E+17	.190E+17	.190E+17	.190E+17
.158E-07	.757E+16	.757E+16	.757E+16	.757E+16	.757E+16
.251E-07	.301E+16	.301E+16	.301E+16	.301E+16	.301E+16
.398E-07	.120E+16	.120E+16	.120E+16	.120E+16	.120E+16
.631E-07	.478E+15	.477E+15	.477E+15	.478E+15	.478E+15
.100E-06	.190E+15	.190E+15	.190E+15	.190E+15	.190E+15
.158E-06	.757E+14	.756E+14	.756E+14	.757E+14	.757E+14
.251E-06	.301E+14	.301E+14	.301E+14	.301E+14	.301E+14
.398E-06	.120E+14	.120E+14	.120E+14	.120E+14	.120E+14
.631E-06	.477E+13	.476E+13	.477E+13	.477E+13	.477E+13
.100E-05	.190E+13	.190E+13	.190E+13	.190E+13	.190E+13
.158E-05	.756E+12	.754E+12	.755E+12	.755E+12	.756E+12
.251E-05	.301E+12	.300E+12	.300E+12	.301E+12	.301E+12
.398E-05	.120E+12	.119E+12	.120E+12	.120E+12	.120E+12
.631E-05	.476E+11	.474E+11	.476E+11	.476E+11	.476E+11
.100E-04	.189E+11	.189E+11	.189E+11	.189E+11	.189E+11
.158E-04	.753E+10	.750E+10	.752E+10	.753E+10	.753E+10
.251E-04	.299E+10	.298E+10	.299E+10	.299E+10	.299E+10
.398E-04	.119E+10	.118E+10	.119E+10	.119E+10	.119E+10
.631E-04	.473E+09	.470E+09	.472E+09	.473E+09	.473E+09
.100E-03	.188E+09	.187E+09	.188E+09	.188E+09	.188E+09
.158E-03	.747E+08	.740E+08	.746E+08	.747E+08	.747E+08
.251E-03	.297E+08	.294E+08	.296E+08	.297E+08	.297E+08
.398E-03	.118E+08	.116E+08	.117E+08	.118E+08	.118E+08
.631E-03	.468E+07	.461E+07	.466E+07	.468E+07	.468E+07
.100E-02	.186E+07	.182E+07	.185E+07	.186E+07	.186E+07
.158E-02	.737E+06	.722E+06	.733E+06	.736E+06	.737E+06
.251E-02	.292E+06	.286E+06	.291E+06	.292E+06	.292E+06
.398E-02	.116E+06	.113E+06	.115E+06	.116E+06	.116E+06
.631E-02	.461E+05	.447E+05	.457E+05	.460E+05	.461E+05
.100E-01	.183E+05	.177E+05	.182E+05	.183E+05	.183E+05
.158E-01	.731E+04	.703E+04	.724E+04	.730E+04	.731E+04
.251E-01	.293E+04	.281E+04	.290E+04	.293E+04	.293E+04
.398E-01	.119E+04	.113E+04	.117E+04	.118E+04	.119E+04
.631E-01	.487E+03	.463E+03	.481E+03	.486E+03	.487E+03
.100E+00	.205E+03	.194E+03	.201E+03	.204E+03	.205E+03
.158E+00	.888E+02	.842E+02	.874E+02	.886E+02	.888E+02
.251E+00	.405E+02	.386E+02	.398E+02	.404E+02	.405E+02
.398E+00	.197E+02	.191E+02	.194E+02	.197E+02	.197E+02
.631E+00	.105E+02	.103E+02	.103E+02	.104E+02	.105E+02
.100E+01	.615E+01	.625E+01	.611E+01	.614E+01	.615E+01
.158E+01	.402E+01	.423E+01	.404E+01	.402E+01	.402E+01
.251E+01	.293E+01	.318E+01	.298E+01	.294E+01	.293E+01
.398E+01	.235E+01	.262E+01	.243E+01	.237E+01	.235E+01
.631E+01	.206E+01	.230E+01	.214E+01	.208E+01	.206E+01
.100E+02	.194E+01	.213E+01	.201E+01	.196E+01	.194E+01

TABLE 2. VALUES OF L4 FOR A=.05

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.759E+25	.757E+25	.758E+25	.759E+25	.759E+25
.158E-07	.191E+25	.190E+25	.190E+25	.190E+25	.191E+25
.251E-07	.478E+24	.477E+24	.478E+24	.478E+24	.478E+24
.398E-07	.120E+24	.120E+24	.120E+24	.120E+24	.120E+24
.631E-07	.301E+23	.300E+23	.301E+23	.301E+23	.301E+23
.100E-06	.756E+22	.753E+22	.755E+22	.756E+22	.756E+22
.158E-06	.190E+22	.189E+22	.189E+22	.190E+22	.190E+22
.251E-06	.476E+21	.473E+21	.475E+21	.476E+21	.476E+21
.398E-06	.119E+21	.118E+21	.119E+21	.119E+21	.119E+21
.631E-06	.299E+20	.297E+20	.299E+20	.299E+20	.299E+20
.100E-05	.750E+19	.743E+19	.748E+19	.750E+19	.750E+19
.158E-05	.188E+19	.186E+19	.187E+19	.188E+19	.188E+19
.251E-05	.471E+18	.465E+18	.469E+18	.470E+18	.471E+18
.398E-05	.118E+18	.116E+18	.117E+18	.118E+18	.118E+18
.631E-05	.295E+17	.290E+17	.294E+17	.295E+17	.295E+17
.100E-04	.737E+16	.723E+16	.734E+16	.737E+16	.737E+16
.158E-04	.184E+16	.180E+16	.183E+16	.184E+16	.184E+16
.251E-04	.460E+15	.448E+15	.457E+15	.460E+15	.460E+15
.398E-04	.115E+15	.111E+15	.114E+15	.115E+15	.115E+15
.631E-04	.286E+14	.277E+14	.284E+14	.286E+14	.286E+14
.100E-03	.713E+13	.685E+13	.706E+13	.711E+13	.713E+13
.158E-03	.177E+13	.170E+13	.175E+13	.177E+13	.177E+13
.251E-03	.440E+12	.419E+12	.435E+12	.439E+12	.440E+12
.398E-03	.109E+12	.103E+12	.108E+12	.109E+12	.109E+12
.631E-03	.270E+11	.253E+11	.266E+11	.269E+11	.270E+11
.100E-02	.668E+10	.621E+10	.656E+10	.666E+10	.668E+10
.158E-02	.165E+10	.152E+10	.161E+10	.164E+10	.165E+10
.251E-02	.406E+09	.370E+09	.397E+09	.405E+09	.406E+09
.398E-02	.100E+09	.902E+08	.974E+08	.995E+08	.100E+09
.631E-02	.246E+08	.219E+08	.239E+08	.245E+08	.246E+08
.100E-01	.605E+07	.532E+07	.585E+07	.602E+07	.605E+07
.158E-01	.149E+07	.130E+07	.144E+07	.148E+07	.149E+07
.251E-01	.371E+06	.317E+06	.356E+06	.368E+06	.371E+06
.398E-01	.930E+05	.786E+05	.889E+05	.923E+05	.930E+05
.631E-01	.238E+05	.199E+05	.226E+05	.236E+05	.238E+05
.100E+00	.627E+04	.523E+04	.595E+04	.622E+04	.627E+04
.158E+00	.174E+04	.145E+04	.164E+04	.172E+04	.174E+04
.251E+00	.516E+03	.441E+03	.488E+03	.511E+03	.516E+03
.398E+00	.169E+03	.151E+03	.161E+03	.168E+03	.169E+03
.631E+00	.631E+02	.602E+02	.606E+02	.625E+02	.631E+02
.100E+01	.274E+02	.287E+02	.269E+02	.272E+02	.274E+02
.158E+01	.141E+02	.165E+02	.143E+02	.141E+02	.141E+02
.251E+01	.859E+01	.111E+02	.911E+01	.866E+01	.859E+01
.398E+01	.621E+01	.864E+01	.687E+01	.632E+01	.621E+01
.631E+01	.529E+01	.742E+01	.596E+01	.541E+01	.529E+01
.100E+02	.522E+01	.687E+01	.574E+01	.532E+01	.522E+01

TABLE 3. VALUES OF L6 FOR A=.05

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.190E+17	.190E+17	.190E+17	.190E+17	.190E+17
.158E-07	.757E+16	.756E+16	.757E+16	.757E+16	.757E+16
.251E-07	.301E+16	.301E+16	.301E+16	.301E+16	.301E+16
.398E-07	.120E+16	.120E+16	.120E+16	.120E+16	.120E+16
.631E-07	.477E+15	.477E+15	.477E+15	.477E+15	.477E+15
.100E-06	.190E+15	.190E+15	.190E+15	.190E+15	.190E+15
.158E-06	.756E+14	.755E+14	.756E+14	.756E+14	.756E+14
.251E-06	.301E+14	.300E+14	.301E+14	.301E+14	.301E+14
.398E-06	.120E+14	.119E+14	.120E+14	.120E+14	.120E+14
.631E-06	.476E+13	.475E+13	.476E+13	.476E+13	.476E+13
.100E-05	.190E+13	.189E+13	.189E+13	.189E+13	.190E+13
.158E-05	.754E+12	.751E+12	.753E+12	.754E+12	.754E+12
.251E-05	.300E+12	.299E+12	.300E+12	.300E+12	.300E+12
.398E-05	.119E+12	.119E+12	.119E+12	.119E+12	.119E+12
.631E-05	.474E+11	.471E+11	.473E+11	.474E+11	.474E+11
.100E-04	.188E+11	.187E+11	.188E+11	.188E+11	.188E+11
.158E-04	.749E+10	.743E+10	.748E+10	.749E+10	.749E+10
.251E-04	.298E+10	.295E+10	.297E+10	.297E+10	.298E+10
.398E-04	.118E+10	.117E+10	.118E+10	.118E+10	.118E+10
.631E-04	.469E+09	.463E+09	.468E+09	.469E+09	.469E+09
.100E-03	.186E+09	.183E+09	.185E+09	.186E+09	.186E+09
.158E-03	.738E+08	.725E+08	.735E+08	.738E+08	.738E+08
.251E-03	.293E+08	.287E+08	.291E+08	.292E+08	.293E+08
.398E-03	.116E+08	.113E+08	.115E+08	.116E+08	.116E+08
.631E-03	.459E+07	.446E+07	.456E+07	.458E+07	.459E+07
.100E-02	.181E+07	.176E+07	.180E+07	.181E+07	.181E+07
.158E-02	.717E+06	.690E+06	.710E+06	.716E+06	.717E+06
.251E-02	.283E+06	.271E+06	.280E+06	.283E+06	.283E+06
.398E-02	.112E+06	.106E+06	.110E+06	.112E+06	.112E+06
.631E-02	.441E+05	.417E+05	.435E+05	.440E+05	.441E+05
.100E-01	.174E+05	.163E+05	.171E+05	.174E+05	.174E+05
.158E-01	.690E+04	.641E+04	.677E+04	.688E+04	.690E+04
.251E-01	.274E+04	.253E+04	.268E+04	.273E+04	.274E+04
.398E-01	.110E+04	.100E+04	.107E+04	.109E+04	.110E+04
.631E-01	.445E+03	.405E+03	.434E+03	.443E+03	.445E+03
.100E+00	.184E+03	.167E+03	.179E+03	.184E+03	.184E+03
.158E+00	.789E+02	.720E+02	.766E+02	.785E+02	.789E+02
.251E+00	.354E+02	.328E+02	.344E+02	.352E+02	.354E+02
.398E+00	.170E+02	.162E+02	.166E+02	.169E+02	.170E+02
.631E+00	.886E+01	.883E+01	.872E+01	.883E+01	.886E+01
.100E+01	.514E+01	.540E+01	.513E+01	.513E+01	.514E+01
.158E+01	.333E+01	.372E+01	.340E+01	.334E+01	.333E+01
.251E+01	.243E+01	.284E+01	.253E+01	.245E+01	.243E+01
.398E+01	.198E+01	.238E+01	.210E+01	.201E+01	.198E+01
.631E+01	.179E+01	.212E+01	.190E+01	.181E+01	.179E+01
.100E+02	.175E+01	.199E+01	.183E+01	.177E+01	.175E+01

TABLE 4. VALUES OF L22 FOR A=.05

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.905E+08	.905E+08	.905E+08	.905E+08	.905E+08
.158E-07	.571E+08	.571E+08	.571E+08	.571E+08	.571E+08
.251E-07	.360E+08	.360E+08	.360E+08	.360E+08	.360E+08
.398E-07	.227E+08	.227E+08	.227E+08	.227E+08	.227E+08
.631E-07	.143E+08	.143E+08	.143E+08	.143E+08	.143E+08
.100E-06	.905E+07	.904E+07	.905E+07	.905E+07	.905E+07
.158E-06	.571E+07	.571E+07	.571E+07	.571E+07	.571E+07
.251E-06	.360E+07	.360E+07	.360E+07	.360E+07	.360E+07
.398E-06	.227E+07	.227E+07	.227E+07	.227E+07	.227E+07
.631E-06	.143E+07	.143E+07	.143E+07	.143E+07	.143E+07
.100E-05	.904E+06	.903E+06	.904E+06	.904E+06	.904E+06
.158E-05	.570E+06	.570E+06	.570E+06	.570E+06	.570E+06
.251E-05	.360E+06	.359E+06	.360E+06	.360E+06	.360E+06
.398E-05	.227E+06	.227E+06	.227E+06	.227E+06	.227E+06
.631E-05	.143E+06	.143E+06	.143E+06	.143E+06	.143E+06
.100E-04	.903E+05	.901E+05	.902E+05	.903E+05	.903E+05
.158E-04	.569E+05	.568E+05	.569E+05	.569E+05	.569E+05
.251E-04	.359E+05	.358E+05	.359E+05	.359E+05	.359E+05
.398E-04	.226E+05	.226E+05	.226E+05	.226E+05	.226E+05
.631E-04	.143E+05	.142E+05	.143E+05	.143E+05	.143E+05
.100E-03	.900E+04	.895E+04	.899E+04	.900E+04	.900E+04
.158E-03	.567E+04	.564E+04	.566E+04	.567E+04	.567E+04
.251E-03	.357E+04	.355E+04	.357E+04	.357E+04	.357E+04
.398E-03	.225E+04	.223E+04	.225E+04	.225E+04	.225E+04
.631E-03	.142E+04	.140E+04	.141E+04	.142E+04	.142E+04
.100E-02	.893E+03	.882E+03	.890E+03	.892E+03	.893E+03
.158E-02	.562E+03	.554E+03	.560E+03	.562E+03	.562E+03
.251E-02	.354E+03	.348E+03	.352E+03	.353E+03	.354E+03
.398E-02	.223E+03	.218E+03	.222E+03	.222E+03	.223E+03
.631E-02	.140E+03	.137E+03	.139E+03	.140E+03	.140E+03
.100E-01	.882E+02	.861E+02	.877E+02	.881E+02	.882E+02
.158E-01	.556E+02	.541E+02	.552E+02	.555E+02	.556E+02
.251E-01	.351E+02	.341E+02	.348E+02	.351E+02	.351E+02
.398E-01	.223E+02	.216E+02	.221E+02	.223E+02	.223E+02
.631E-01	.142E+02	.138E+02	.141E+02	.142E+02	.142E+02
.100E+00	.919E+01	.896E+01	.910E+01	.917E+01	.919E+01
.158E+00	.604E+01	.595E+01	.598E+01	.602E+01	.604E+01
.251E+00	.406E+01	.407E+01	.404E+01	.406E+01	.406E+01
.398E+00	.284E+01	.290E+01	.283E+01	.283E+01	.284E+01
.631E+00	.207E+01	.217E+01	.209E+01	.207E+01	.207E+01
.100E+01	.160E+01	.171E+01	.163E+01	.161E+01	.160E+01
.158E+01	.132E+01	.143E+01	.135E+01	.132E+01	.132E+01
.251E+01	.115E+01	.125E+01	.118E+01	.116E+01	.115E+01
.398E+01	.107E+01	.114E+01	.109E+01	.107E+01	.107E+01
.631E+01	.102E+01	.107E+01	.104E+01	.103E+01	.102E+01
.100E+02	.101E+01	.104E+01	.101E+01	.101E+01	.101E+01

TABLE 5. VALUES OF L2 FOR A=.1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.181E+17	.181E+17	.181E+17	.181E+17	.181E+17
.158E-07	.720E+16	.719E+16	.720E+16	.720E+16	.720E+16
.251E-07	.286E+16	.286E+16	.286E+16	.286E+16	.286E+16
.398E-07	.114E+16	.114E+16	.114E+16	.114E+16	.114E+16
.631E-07	.454E+15	.453E+15	.454E+15	.454E+15	.454E+15
.100E-06	.181E+15	.180E+15	.181E+15	.181E+15	.181E+15
.158E-06	.719E+14	.718E+14	.719E+14	.719E+14	.719E+14
.251E-06	.286E+14	.285E+14	.286E+14	.286E+14	.286E+14
.398E-06	.114E+14	.114E+14	.114E+14	.114E+14	.114E+14
.631E-06	.453E+13	.451E+13	.452E+13	.453E+13	.453E+13
.100E-05	.180E+13	.180E+13	.180E+13	.180E+13	.180E+13
.158E-05	.717E+12	.714E+12	.716E+12	.716E+12	.717E+12
.251E-05	.285E+12	.284E+12	.285E+12	.285E+12	.285E+12
.398E-05	.113E+12	.113E+12	.113E+12	.113E+12	.113E+12
.631E-05	.450E+11	.447E+11	.450E+11	.450E+11	.450E+11
.100E-04	.179E+11	.178E+11	.179E+11	.179E+11	.179E+11
.158E-04	.711E+10	.705E+10	.710E+10	.711E+10	.711E+10
.251E-04	.283E+10	.280E+10	.282E+10	.282E+10	.283E+10
.398E-04	.112E+10	.111E+10	.112E+10	.112E+10	.112E+10
.631E-04	.445E+09	.439E+09	.444E+09	.445E+09	.445E+09
.100E-03	.177E+09	.174E+09	.176E+09	.176E+09	.177E+09
.158E-03	.700E+08	.687E+08	.697E+08	.700E+08	.700E+08
.251E-03	.277E+08	.271E+08	.276E+08	.277E+08	.277E+08
.398E-03	.110E+08	.107E+08	.109E+08	.110E+08	.110E+08
.631E-03	.435E+07	.422E+07	.431E+07	.434E+07	.435E+07
.100E-02	.172E+07	.166E+07	.170E+07	.172E+07	.172E+07
.158E-02	.679E+06	.653E+06	.672E+06	.678E+06	.679E+06
.251E-02	.268E+06	.257E+06	.265E+06	.268E+06	.268E+06
.398E-02	.106E+06	.101E+06	.104E+06	.106E+06	.106E+06
.631E-02	.418E+05	.395E+05	.412E+05	.417E+05	.418E+05
.100E-01	.165E+05	.155E+05	.162E+05	.164E+05	.165E+05
.158E-01	.653E+04	.610E+04	.642E+04	.651E+04	.653E+04
.251E-01	.260E+04	.241E+04	.255E+04	.259E+04	.260E+04
.398E-01	.104E+04	.963E+03	.102E+04	.104E+04	.104E+04
.631E-01	.423E+03	.391E+03	.414E+03	.422E+03	.423E+03
.100E+00	.176E+03	.163E+03	.172E+03	.175E+03	.176E+03
.158E+00	.755E+02	.706E+02	.737E+02	.751E+02	.755E+02
.251E+00	.340E+02	.326E+02	.333E+02	.339E+02	.340E+02
.398E+00	.164E+02	.163E+02	.162E+02	.164E+02	.164E+02
.631E+00	.865E+01	.900E+01	.861E+01	.863E+01	.865E+01
.100E+01	.506E+01	.556E+01	.513E+01	.507E+01	.506E+01
.158E+01	.334E+01	.384E+01	.346E+01	.336E+01	.334E+01
.251E+01	.249E+01	.295E+01	.262E+01	.251E+01	.249E+01
.398E+01	.209E+01	.246E+01	.221E+01	.211E+01	.209E+01
.631E+01	.193E+01	.219E+01	.201E+01	.195E+01	.193E+01
.100E+02	.191E+01	.205E+01	.194E+01	.191E+01	.191E+01

TABLE 6. VALUES OF L4 FOR A=.1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.719E+25	.716E+25	.719E+25	.719E+25	.719E+25
.158E-07	.181E+25	.180E+25	.180E+25	.180E+25	.181E+25
.251E-07	.453E+24	.450E+24	.452E+24	.453E+24	.453E+24
.398E-07	.114E+24	.113E+24	.113E+24	.114E+24	.114E+24
.631E-07	.285E+23	.283E+23	.284E+23	.285E+23	.285E+23
.100E-06	.714E+22	.708E+22	.712E+22	.714E+22	.714E+22
.158E-06	.179E+22	.177E+22	.178E+22	.179E+22	.179E+22
.251E-06	.448E+21	.443E+21	.447E+21	.448E+21	.448E+21
.398E-06	.112E+21	.111E+21	.112E+21	.112E+21	.112E+21
.631E-06	.281E+20	.276E+20	.280E+20	.281E+20	.281E+20
.100E-05	.703E+19	.690E+19	.699E+19	.702E+19	.703E+19
.158E-05	.176E+19	.172E+19	.175E+19	.176E+19	.176E+19
.251E-05	.439E+18	.428E+18	.436E+18	.438E+18	.439E+18
.398E-05	.110E+18	.106E+18	.109E+18	.109E+18	.110E+18
.631E-05	.273E+17	.264E+17	.271E+17	.273E+17	.273E+17
.100E-04	.680E+16	.656E+16	.674E+16	.679E+16	.680E+16
.158E-04	.169E+16	.162E+16	.167E+16	.169E+16	.169E+16
.251E-04	.420E+15	.401E+15	.415E+15	.420E+15	.420E+15
.398E-04	.104E+15	.988E+14	.103E+15	.104E+15	.104E+15
.631E-04	.258E+14	.243E+14	.254E+14	.258E+14	.258E+14
.100E-03	.638E+13	.596E+13	.627E+13	.636E+13	.638E+13
.158E-03	.157E+13	.146E+13	.154E+13	.157E+13	.157E+13
.251E-03	.387E+12	.355E+12	.379E+12	.386E+12	.387E+12
.398E-03	.951E+11	.861E+11	.927E+11	.947E+11	.951E+11
.631E-03	.233E+11	.208E+11	.226E+11	.232E+11	.233E+11
.100E-02	.568E+10	.501E+10	.550E+10	.565E+10	.568E+10
.158E-02	.138E+10	.120E+10	.133E+10	.137E+10	.138E+10
.251E-02	.335E+09	.287E+09	.322E+09	.333E+09	.335E+09
.398E-02	.810E+08	.681E+08	.775E+08	.804E+08	.810E+08
.631E-02	.195E+08	.161E+08	.186E+08	.194E+08	.195E+08
.100E-01	.471E+07	.381E+07	.445E+07	.466E+07	.471E+07
.158E-01	.113E+07	.902E+06	.107E+07	.112E+07	.113E+07
.251E-01	.274E+06	.214E+06	.256E+06	.271E+06	.274E+06
.398E-01	.669E+05	.516E+05	.622E+05	.660E+05	.669E+05
.631E-01	.166E+05	.127E+05	.154E+05	.164E+05	.166E+05
.100E+00	.423E+04	.329E+04	.391E+04	.417E+04	.423E+04
.158E+00	.113E+04	.912E+03	.105E+04	.112E+04	.113E+04
.251E+00	.325E+03	.281E+03	.303E+03	.321E+03	.325E+03
.398E+00	.103E+03	.999E+02	.983E+02	.102E+03	.103E+03
.631E+00	.376E+02	.421E+02	.370E+02	.374E+02	.376E+02
.100E+01	.162E+02	.214E+02	.168E+02	.163E+02	.162E+02
.158E+01	.849E+01	.129E+02	.944E+01	.863E+01	.849E+01
.251E+01	.555E+01	.916E+01	.652E+01	.571E+01	.555E+01
.398E+01	.456E+01	.739E+01	.541E+01	.471E+01	.456E+01
.631E+01	.461E+01	.657E+01	.516E+01	.470E+01	.461E+01
.100E+02	.529E+01	.628E+01	.541E+01	.529E+01	.529E+01

TABLE 7. VALUES OF L6 FOR A=.1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.181E+17	.180E+17	.181E+17	.181E+17	.181E+17
.158E-07	.719E+16	.718E+16	.719E+16	.719E+16	.719E+16
.251E-07	.286E+16	.286E+16	.286E+16	.286E+16	.286E+16
.398E-07	.114E+16	.114E+16	.114E+16	.114E+16	.114E+16
.631E-07	.453E+15	.452E+15	.453E+15	.453E+15	.453E+15
.100E-06	.180E+15	.180E+15	.180E+15	.180E+15	.180E+15
.158E-06	.717E+14	.715E+14	.717E+14	.717E+14	.717E+14
.251E-06	.285E+14	.284E+14	.285E+14	.285E+14	.285E+14
.398E-06	.113E+14	.113E+14	.113E+14	.113E+14	.113E+14
.631E-06	.451E+13	.449E+13	.451E+13	.451E+13	.451E+13
.100E-05	.179E+13	.178E+13	.179E+13	.179E+13	.179E+13
.158E-05	.713E+12	.708E+12	.712E+12	.713E+12	.713E+12
.251E-05	.283E+12	.281E+12	.283E+12	.283E+12	.283E+12
.398E-05	.113E+12	.111E+12	.112E+12	.112E+12	.113E+12
.631E-05	.447E+11	.441E+11	.445E+11	.447E+11	.447E+11
.100E-04	.177E+11	.175E+11	.177E+11	.177E+11	.177E+11
.158E-04	.703E+10	.691E+10	.700E+10	.703E+10	.703E+10
.251E-04	.279E+10	.273E+10	.277E+10	.279E+10	.279E+10
.398E-04	.110E+10	.108E+10	.110E+10	.110E+10	.110E+10
.631E-04	.437E+09	.426E+09	.434E+09	.437E+09	.437E+09
.100E-03	.173E+09	.168E+09	.171E+09	.173E+09	.173E+09
.158E-03	.683E+08	.659E+08	.677E+08	.681E+08	.683E+08
.251E-03	.269E+08	.258E+08	.267E+08	.269E+08	.269E+08
.398E-03	.106E+08	.101E+08	.105E+08	.106E+08	.106E+08
.631E-03	.417E+07	.395E+07	.412E+07	.416E+07	.417E+07
.100E-02	.164E+07	.154E+07	.161E+07	.163E+07	.164E+07
.158E-02	.642E+06	.598E+06	.631E+06	.640E+06	.642E+06
.251E-02	.251E+06	.232E+06	.246E+06	.251E+06	.251E+06
.398E-02	.982E+05	.895E+05	.959E+05	.978E+05	.982E+05
.631E-02	.383E+05	.345E+05	.373E+05	.381E+05	.383E+05
.100E-01	.149E+05	.133E+05	.145E+05	.149E+05	.149E+05
.158E-01	.582E+04	.512E+04	.563E+04	.579E+04	.582E+04
.251E-01	.228E+04	.198E+04	.219E+04	.226E+04	.228E+04
.398E-01	.895E+03	.774E+03	.859E+03	.889E+03	.895E+03
.631E-01	.356E+03	.308E+03	.341E+03	.353E+03	.356E+03
.100E+00	.144E+03	.127E+03	.138E+03	.143E+03	.144E+03
.158E+00	.604E+02	.546E+02	.580E+02	.599E+02	.604E+02
.251E+00	.265E+02	.253E+02	.257E+02	.264E+02	.265E+02
.398E+00	.125E+02	.128E+02	.123E+02	.125E+02	.125E+02
.631E+00	.648E+01	.723E+01	.652E+01	.647E+01	.648E+01
.100E+01	.377E+01	.458E+01	.393E+01	.379E+01	.377E+01
.158E+01	.251E+01	.325E+01	.270E+01	.254E+01	.251E+01
.251E+01	.194E+01	.255E+01	.212E+01	.197E+01	.194E+01
.398E+01	.171E+01	.218E+01	.186E+01	.174E+01	.171E+01
.631E+01	.168E+01	.199E+01	.177E+01	.170E+01	.168E+01
.100E+02	.176E+01	.190E+01	.177E+01	.176E+01	.176E+01

TABLE 8. VALUES OF L22 FOR A=.1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.818E+08	.818E+08	.818E+08	.818E+08	.818E+08
.158E-07	.516E+08	.516E+08	.516E+08	.516E+08	.516E+08
.251E-07	.326E+08	.326E+08	.326E+08	.326E+08	.326E+08
.398E-07	.206E+08	.205E+08	.206E+08	.206E+08	.206E+08
.631E-07	.130E+08	.130E+08	.130E+08	.130E+08	.130E+08
.100E-06	.818E+07	.818E+07	.818E+07	.818E+07	.818E+07
.158E-06	.516E+07	.516E+07	.516E+07	.516E+07	.516E+07
.251E-06	.326E+07	.325E+07	.325E+07	.326E+07	.326E+07
.398E-06	.205E+07	.205E+07	.205E+07	.205E+07	.205E+07
.631E-06	.130E+07	.129E+07	.129E+07	.130E+07	.130E+07
.100E-05	.817E+06	.816E+06	.817E+06	.817E+06	.817E+06
.158E-05	.515E+06	.514E+06	.515E+06	.515E+06	.515E+06
.251E-05	.325E+06	.324E+06	.325E+06	.325E+06	.325E+06
.398E-05	.205E+06	.204E+06	.205E+06	.205E+06	.205E+06
.631E-05	.129E+06	.129E+06	.129E+06	.129E+06	.129E+06
.100E-04	.814E+05	.811E+05	.813E+05	.814E+05	.814E+05
.158E-04	.513E+05	.511E+05	.513E+05	.513E+05	.513E+05
.251E-04	.323E+05	.321E+05	.323E+05	.323E+05	.323E+05
.398E-04	.204E+05	.202E+05	.203E+05	.204E+05	.204E+05
.631E-04	.128E+05	.127E+05	.128E+05	.128E+05	.128E+05
.100E-03	.808E+04	.799E+04	.806E+04	.807E+04	.808E+04
.158E-03	.508E+04	.502E+04	.507E+04	.508E+04	.508E+04
.251E-03	.320E+04	.315E+04	.319E+04	.319E+04	.320E+04
.398E-03	.201E+04	.197E+04	.200E+04	.201E+04	.201E+04
.631E-03	.126E+04	.124E+04	.126E+04	.126E+04	.126E+04
.100E-02	.792E+03	.773E+03	.788E+03	.792E+03	.792E+03
.158E-02	.497E+03	.483E+03	.494E+03	.496E+03	.497E+03
.251E-02	.312E+03	.301E+03	.309E+03	.311E+03	.312E+03
.398E-02	.195E+03	.188E+03	.193E+03	.195E+03	.195E+03
.631E-02	.122E+03	.117E+03	.121E+03	.122E+03	.122E+03
.100E-01	.764E+02	.729E+02	.755E+02	.763E+02	.764E+02
.158E-01	.478E+02	.455E+02	.472E+02	.477E+02	.478E+02
.251E-01	.300E+02	.285E+02	.295E+02	.299E+02	.300E+02
.398E-01	.189E+02	.180E+02	.186E+02	.188E+02	.189E+02
.631E-01	.119E+02	.116E+02	.118E+02	.119E+02	.119E+02
.100E+00	.765E+01	.758E+01	.756E+01	.763E+01	.765E+01
.158E+00	.499E+01	.511E+01	.497E+01	.499E+01	.499E+01
.251E+00	.336E+01	.357E+01	.338E+01	.336E+01	.336E+01
.398E+00	.235E+01	.260E+01	.240E+01	.236E+01	.235E+01
.631E+00	.175E+01	.198E+01	.181E+01	.176E+01	.175E+01
.100E+01	.139E+01	.159E+01	.145E+01	.140E+01	.139E+01
.158E+01	.119E+01	.135E+01	.124E+01	.119E+01	.119E+01
.251E+01	.108E+01	.120E+01	.111E+01	.108E+01	.108E+01
.398E+01	.103E+01	.110E+01	.105E+01	.103E+01	.103E+01
.631E+01	.101E+01	.105E+01	.102E+01	.101E+01	.101E+01
.100E+02	.100E+01	.102E+01	.101E+01	.100E+01	.100E+01

TABLE 9. VALUES OF L2 FOR A=.2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.163E+17	.163E+17	.163E+17	.163E+17	.163E+17
.158E-07	.650E+16	.649E+16	.650E+16	.650E+16	.650E+16
.251E-07	.259E+16	.258E+16	.259E+16	.259E+16	.259E+16
.398E-07	.103E+16	.103E+16	.103E+16	.103E+16	.103E+16
.631E-07	.410E+15	.409E+15	.410E+15	.410E+15	.410E+15
.100E-06	.163E+15	.163E+15	.163E+15	.163E+15	.163E+15
.158E-06	.649E+14	.646E+14	.648E+14	.648E+14	.649E+14
.251E-06	.258E+14	.257E+14	.258E+14	.258E+14	.258E+14
.398E-06	.103E+14	.102E+14	.102E+14	.103E+14	.103E+14
.631E-06	.408E+13	.405E+13	.407E+13	.408E+13	.408E+13
.100E-05	.162E+13	.161E+13	.162E+13	.162E+13	.162E+13
.158E-05	.644E+12	.639E+12	.643E+12	.644E+12	.644E+12
.251E-05	.256E+12	.253E+12	.255E+12	.256E+12	.256E+12
.398E-05	.102E+12	.100E+12	.101E+12	.102E+12	.102E+12
.631E-05	.403E+11	.398E+11	.402E+11	.403E+11	.403E+11
.100E-04	.160E+11	.157E+11	.159E+11	.160E+11	.160E+11
.158E-04	.634E+10	.623E+10	.631E+10	.634E+10	.634E+10
.251E-04	.251E+10	.246E+10	.250E+10	.251E+10	.251E+10
.398E-04	.995E+09	.971E+09	.989E+09	.994E+09	.995E+09
.631E-04	.394E+09	.383E+09	.391E+09	.393E+09	.394E+09
.100E-03	.156E+09	.151E+09	.154E+09	.155E+09	.156E+09
.158E-03	.614E+08	.592E+08	.609E+08	.613E+08	.614E+08
.251E-03	.242E+08	.232E+08	.240E+08	.242E+08	.242E+08
.398E-03	.954E+07	.910E+07	.943E+07	.952E+07	.954E+07
.631E-03	.375E+07	.356E+07	.370E+07	.374E+07	.375E+07
.100E-02	.147E+07	.139E+07	.145E+07	.147E+07	.147E+07
.158E-02	.578E+06	.539E+06	.568E+06	.576E+06	.578E+06
.251E-02	.226E+06	.209E+06	.222E+06	.225E+06	.226E+06
.398E-02	.884E+05	.812E+05	.865E+05	.881E+05	.884E+05
.631E-02	.345E+05	.314E+05	.337E+05	.344E+05	.345E+05
.100E-01	.135E+05	.122E+05	.131E+05	.134E+05	.135E+05
.158E-01	.527E+04	.472E+04	.512E+04	.525E+04	.527E+04
.251E-01	.207E+04	.184E+04	.200E+04	.206E+04	.207E+04
.398E-01	.818E+03	.728E+03	.790E+03	.813E+03	.818E+03
.631E-01	.327E+03	.294E+03	.316E+03	.325E+03	.327E+03
.100E+00	.134E+03	.123E+03	.129E+03	.133E+03	.134E+03
.158E+00	.566E+02	.540E+02	.550E+02	.563E+02	.566E+02
.251E+00	.252E+02	.255E+02	.247E+02	.251E+02	.252E+02
.398E+00	.121E+02	.132E+02	.121E+02	.120E+02	.121E+02
.631E+00	.636E+01	.753E+01	.655E+01	.638E+01	.636E+01
.100E+01	.380E+01	.480E+01	.404E+01	.384E+01	.380E+01
.158E+01	.263E+01	.341E+01	.285E+01	.266E+01	.263E+01
.251E+01	.211E+01	.268E+01	.228E+01	.214E+01	.211E+01
.398E+01	.192E+01	.229E+01	.202E+01	.194E+01	.192E+01
.631E+01	.189E+01	.208E+01	.192E+01	.189E+01	.189E+01
.100E+02	.192E+01	.199E+01	.192E+01	.192E+01	.192E+01

TABLE **10** . VALUES OF L4 FOR A=.2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.647E+25	.641E+25	.645E+25	.646E+25	.647E+25
.158E-07	.162E+25	.160E+25	.162E+25	.162E+25	.162E+25
.251E-07	.406E+24	.401E+24	.405E+24	.406E+24	.406E+24
.398E-07	.102E+24	.100E+24	.101E+24	.102E+24	.102E+24
.631E-07	.255E+23	.251E+23	.254E+23	.254E+23	.255E+23
.100E-06	.637E+22	.626E+22	.634E+22	.636E+22	.637E+22
.158E-06	.159E+22	.156E+22	.158E+22	.159E+22	.159E+22
.251E-06	.398E+21	.389E+21	.396E+21	.397E+21	.398E+21
.398E-06	.993E+20	.967E+20	.987E+20	.992E+20	.993E+20
.631E-06	.248E+20	.240E+20	.246E+20	.247E+20	.248E+20
.100E-05	.617E+19	.596E+19	.612E+19	.616E+19	.617E+19
.158E-05	.154E+19	.148E+19	.152E+19	.153E+19	.154E+19
.251E-05	.382E+18	.365E+18	.378E+18	.381E+18	.382E+18
.398E-05	.948E+17	.900E+17	.935E+17	.945E+17	.948E+17
.631E-05	.235E+17	.222E+17	.231E+17	.234E+17	.235E+17
.100E-04	.581E+16	.544E+16	.571E+16	.579E+16	.581E+16
.158E-04	.143E+16	.133E+16	.141E+16	.143E+16	.143E+16
.251E-04	.353E+15	.324E+15	.345E+15	.352E+15	.353E+15
.398E-04	.866E+14	.788E+14	.846E+14	.863E+14	.866E+14
.631E-04	.212E+14	.191E+14	.206E+14	.211E+14	.212E+14
.100E-03	.518E+13	.459E+13	.502E+13	.515E+13	.518E+13
.158E-03	.126E+13	.110E+13	.122E+13	.125E+13	.126E+13
.251E-03	.305E+12	.262E+12	.294E+12	.303E+12	.305E+12
.398E-03	.736E+11	.622E+11	.705E+11	.730E+11	.736E+11
.631E-03	.177E+11	.146E+11	.168E+11	.175E+11	.177E+11
.100E-02	.422E+10	.342E+10	.400E+10	.418E+10	.422E+10
.158E-02	.100E+10	.795E+09	.944E+09	.992E+09	.100E+10
.251E-02	.237E+09	.183E+09	.222E+09	.234E+09	.237E+09
.398E-02	.556E+08	.419E+08	.517E+08	.549E+08	.556E+08
.631E-02	.130E+08	.953E+07	.120E+08	.128E+08	.130E+08
.100E-01	.302E+07	.216E+07	.276E+07	.297E+07	.302E+07
.158E-01	.701E+06	.488E+06	.635E+06	.689E+06	.701E+06
.251E-01	.162E+06	.111E+06	.146E+06	.159E+06	.162E+06
.398E-01	.378E+05	.258E+05	.338E+05	.371E+05	.378E+05
.631E-01	.894E+04	.623E+04	.797E+04	.875E+04	.894E+04
.100E+00	.217E+04	.161E+04	.194E+04	.212E+04	.217E+04
.158E+00	.551E+03	.460E+03	.499E+03	.541E+03	.551E+03
.251E+00	.151E+03	.152E+03	.141E+03	.149E+03	.151E+03
.398E+00	.462E+02	.590E+02	.460E+02	.460E+02	.462E+02
.631E+00	.167E+02	.273E+02	.182E+02	.168E+02	.167E+02
.100E+01	.752E+01	.150E+02	.912E+01	.775E+01	.752E+01
.158E+01	.452E+01	.975E+01	.586E+01	.475E+01	.452E+01
.251E+01	.375E+01	.733E+01	.471E+01	.391E+01	.375E+01
.398E+01	.403E+01	.622E+01	.451E+01	.409E+01	.403E+01
.631E+01	.490E+01	.581E+01	.487E+01	.486E+01	.490E+01
.100E+02	.599E+01	.581E+01	.558E+01	.588E+01	.599E+01

TABLE 11. VALUES OF L6 FOR A=.2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.163E+17	.163E+17	.163E+17	.163E+17	.163E+17
.158E-07	.649E+16	.647E+16	.649E+16	.649E+16	.649E+16
.251E-07	.258E+16	.257E+16	.258E+16	.258E+16	.258E+16
.398E-07	.103E+16	.102E+16	.103E+16	.103E+16	.103E+16
.631E-07	.408E+15	.406E+15	.408E+15	.408E+15	.408E+15
.100E-06	.162E+15	.161E+15	.162E+15	.162E+15	.162E+15
.158E-06	.646E+14	.641E+14	.644E+14	.645E+14	.646E+14
.251E-06	.257E+14	.254E+14	.256E+14	.256E+14	.257E+14
.398E-06	.102E+14	.101E+14	.102E+14	.102E+14	.102E+14
.631E-06	.405E+13	.400E+13	.403E+13	.404E+13	.405E+13
.100E-05	.161E+13	.158E+13	.160E+13	.161E+13	.161E+13
.158E-05	.637E+12	.627E+12	.635E+12	.637E+12	.637E+12
.251E-05	.253E+12	.248E+12	.251E+12	.252E+12	.253E+12
.398E-05	.100E+12	.979E+11	.996E+11	.100E+12	.100E+12
.631E-05	.396E+11	.386E+11	.394E+11	.396E+11	.396E+11
.100E-04	.157E+11	.152E+11	.156E+11	.157E+11	.157E+11
.158E-04	.619E+10	.599E+10	.614E+10	.618E+10	.619E+10
.251E-04	.244E+10	.235E+10	.242E+10	.244E+10	.244E+10
.398E-04	.963E+09	.920E+09	.952E+09	.961E+09	.963E+09
.631E-04	.379E+09	.360E+09	.374E+09	.378E+09	.379E+09
.100E-03	.149E+09	.140E+09	.147E+09	.148E+09	.149E+09
.158E-03	.583E+08	.544E+08	.573E+08	.581E+08	.583E+08
.251E-03	.228E+08	.211E+08	.223E+08	.227E+08	.228E+08
.398E-03	.889E+07	.812E+07	.869E+07	.885E+07	.889E+07
.631E-03	.346E+07	.312E+07	.337E+07	.344E+07	.346E+07
.100E-02	.134E+07	.119E+07	.130E+07	.133E+07	.134E+07
.158E-02	.518E+06	.454E+06	.501E+06	.515E+06	.518E+06
.251E-02	.199E+06	.172E+06	.192E+06	.198E+06	.199E+06
.398E-02	.764E+05	.647E+05	.732E+05	.758E+05	.764E+05
.631E-02	.292E+05	.243E+05	.278E+05	.289E+05	.292E+05
.100E-01	.111E+05	.909E+04	.105E+05	.110E+05	.111E+05
.158E-01	.422E+04	.341E+04	.398E+04	.418E+04	.422E+04
.251E-01	.160E+04	.129E+04	.151E+04	.159E+04	.160E+04
.398E-01	.612E+03	.496E+03	.573E+03	.604E+03	.612E+03
.631E-01	.236E+03	.196E+03	.221E+03	.233E+03	.236E+03
.100E+00	.925E+02	.817E+02	.873E+02	.915E+02	.925E+02
.158E+00	.376E+02	.364E+02	.361E+02	.373E+02	.376E+02
.251E+00	.162E+02	.177E+02	.160E+02	.161E+02	.162E+02
.398E+00	.759E+01	.948E+01	.782E+01	.761E+01	.759E+01
.631E+00	.401E+01	.565E+01	.435E+01	.406E+01	.401E+01
.100E+01	.248E+01	.375E+01	.281E+01	.253E+01	.248E+01
.158E+01	.184E+01	.277E+01	.210E+01	.188E+01	.184E+01
.251E+01	.162E+01	.226E+01	.180E+01	.165E+01	.162E+01
.398E+01	.161E+01	.199E+01	.170E+01	.163E+01	.161E+01
.631E+01	.171E+01	.187E+01	.171E+01	.171E+01	.171E+01
.100E+02	.182E+01	.183E+01	.179E+01	.181E+01	.182E+01

TABLE 12. VALUES OF L22 FOR A=.2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.704E+08	.704E+08	.704E+08	.704E+08	.704E+08
.158E-07	.444E+08	.444E+08	.444E+08	.444E+08	.444E+08
.251E-07	.280E+08	.280E+08	.280E+08	.280E+08	.280E+08
.398E-07	.177E+08	.177E+08	.177E+08	.177E+08	.177E+08
.631E-07	.112E+08	.111E+08	.112E+08	.112E+08	.112E+08
.100E-06	.704E+07	.703E+07	.703E+07	.703E+07	.704E+07
.158E-06	.444E+07	.443E+07	.444E+07	.444E+07	.444E+07
.251E-06	.280E+07	.279E+07	.280E+07	.280E+07	.280E+07
.398E-06	.176E+07	.176E+07	.176E+07	.176E+07	.176E+07
.631E-06	.111E+07	.111E+07	.111E+07	.111E+07	.111E+07
.100E-05	.702E+06	.699E+06	.701E+06	.702E+06	.702E+06
.158E-05	.442E+06	.440E+06	.442E+06	.442E+06	.442E+06
.251E-05	.279E+06	.277E+06	.278E+06	.279E+06	.279E+06
.398E-05	.176E+06	.175E+06	.175E+06	.176E+06	.176E+06
.631E-05	.111E+06	.110E+06	.110E+06	.111E+06	.111E+06
.100E-04	.697E+05	.691E+05	.695E+05	.697E+05	.697E+05
.158E-04	.439E+05	.434E+05	.438E+05	.439E+05	.439E+05
.251E-04	.276E+05	.273E+05	.275E+05	.276E+05	.276E+05
.398E-04	.174E+05	.171E+05	.173E+05	.174E+05	.174E+05
.631E-04	.109E+05	.107E+05	.109E+05	.109E+05	.109E+05
.100E-03	.686E+04	.672E+04	.682E+04	.685E+04	.686E+04
.158E-03	.430E+04	.420E+04	.428E+04	.430E+04	.430E+04
.251E-03	.270E+04	.262E+04	.268E+04	.269E+04	.270E+04
.398E-03	.169E+04	.163E+04	.168E+04	.169E+04	.169E+04
.631E-03	.106E+04	.102E+04	.105E+04	.106E+04	.106E+04
.100E-02	.660E+03	.631E+03	.653E+03	.659E+03	.660E+03
.158E-02	.412E+03	.391E+03	.407E+03	.411E+03	.412E+03
.251E-02	.257E+03	.242E+03	.253E+03	.256E+03	.257E+03
.398E-02	.159E+03	.149E+03	.157E+03	.159E+03	.159E+03
.631E-02	.990E+02	.922E+02	.971E+02	.987E+02	.990E+02
.100E-01	.614E+02	.570E+02	.601E+02	.612E+02	.614E+02
.158E-01	.380E+02	.354E+02	.372E+02	.379E+02	.380E+02
.251E-01	.236E+02	.222E+02	.231E+02	.235E+02	.236E+02
.398E-01	.147E+02	.142E+02	.144E+02	.146E+02	.147E+02
.631E-01	.923E+01	.924E+01	.910E+01	.920E+01	.923E+01
.100E+00	.588E+01	.620E+01	.587E+01	.587E+01	.588E+01
.158E+00	.385E+01	.430E+01	.390E+01	.386E+01	.385E+01
.251E+00	.262E+01	.309E+01	.272E+01	.264E+01	.262E+01
.398E+00	.189E+01	.232E+01	.200E+01	.191E+01	.189E+01
.631E+00	.147E+01	.181E+01	.156E+01	.148E+01	.147E+01
.100E+01	.123E+01	.148E+01	.130E+01	.124E+01	.123E+01
.158E+01	.110E+01	.128E+01	.115E+01	.111E+01	.110E+01
.251E+01	.104E+01	.115E+01	.107E+01	.104E+01	.104E+01
.398E+01	.101E+01	.107E+01	.103E+01	.101E+01	.101E+01
.631E+01	.100E+01	.103E+01	.101E+01	.100E+01	.100E+01
.100E+02	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01

TABLE 13. VALUES OF L2 FOR A=.35

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.140E+17	.140E+17	.140E+17	.140E+17	.140E+17
.158E-07	.559E+16	.557E+16	.558E+16	.559E+16	.559E+16
.251E-07	.222E+16	.221E+16	.222E+16	.222E+16	.222E+16
.398E-07	.884E+15	.880E+15	.883E+15	.884E+15	.884E+15
.631E-07	.351E+15	.350E+15	.351E+15	.351E+15	.351E+15
.100E-06	.140E+15	.139E+15	.140E+15	.140E+15	.140E+15
.158E-06	.555E+14	.552E+14	.555E+14	.555E+14	.555E+14
.251E-06	.221E+14	.219E+14	.220E+14	.221E+14	.221E+14
.398E-06	.877E+13	.868E+13	.875E+13	.876E+13	.877E+13
.631E-06	.348E+13	.344E+13	.347E+13	.348E+13	.348E+13
.100E-05	.138E+13	.136E+13	.138E+13	.138E+13	.138E+13
.158E-05	.548E+12	.540E+12	.546E+12	.548E+12	.548E+12
.251E-05	.217E+12	.214E+12	.217E+12	.217E+12	.217E+12
.398E-05	.862E+11	.844E+11	.857E+11	.861E+11	.862E+11
.631E-05	.341E+11	.333E+11	.339E+11	.341E+11	.341E+11
.100E-04	.135E+11	.131E+11	.134E+11	.135E+11	.135E+11
.158E-04	.533E+10	.517E+10	.529E+10	.533E+10	.533E+10
.251E-04	.211E+10	.203E+10	.209E+10	.210E+10	.211E+10
.398E-04	.831E+09	.798E+09	.822E+09	.829E+09	.831E+09
.631E-04	.327E+09	.312E+09	.323E+09	.326E+09	.327E+09
.100E-03	.129E+09	.122E+09	.127E+09	.128E+09	.129E+09
.158E-03	.505E+08	.476E+08	.497E+08	.504E+08	.505E+08
.251E-03	.198E+08	.185E+08	.194E+08	.197E+08	.198E+08
.398E-03	.773E+07	.717E+07	.759E+07	.771E+07	.773E+07
.631E-03	.302E+07	.277E+07	.295E+07	.301E+07	.302E+07
.100E-02	.117E+07	.107E+07	.115E+07	.117E+07	.117E+07
.158E-02	.456E+06	.410E+06	.444E+06	.454E+06	.456E+06
.251E-02	.176E+06	.157E+06	.171E+06	.176E+06	.176E+06
.398E-02	.682E+05	.601E+05	.659E+05	.678E+05	.682E+05
.631E-02	.263E+05	.229E+05	.253E+05	.261E+05	.263E+05
.100E-01	.101E+05	.874E+04	.973E+04	.101E+05	.101E+05
.158E-01	.390E+04	.335E+04	.374E+04	.387E+04	.390E+04
.251E-01	.151E+04	.129E+04	.144E+04	.149E+04	.151E+04
.398E-01	.586E+03	.509E+03	.560E+03	.581E+03	.586E+03
.631E-01	.231E+03	.206E+03	.221E+03	.229E+03	.231E+03
.100E+00	.929E+02	.879E+02	.894E+02	.922E+02	.929E+02
.158E+00	.388E+02	.400E+02	.379E+02	.386E+02	.388E+02
.251E+00	.171E+02	.197E+02	.172E+02	.171E+02	.171E+02
.398E+00	.825E+01	.106E+02	.863E+01	.829E+01	.825E+01
.631E+00	.449E+01	.631E+01	.491E+01	.456E+01	.449E+01
.100E+01	.287E+01	.416E+01	.322E+01	.293E+01	.287E+01
.158E+01	.219E+01	.305E+01	.243E+01	.223E+01	.219E+01
.251E+01	.193E+01	.246E+01	.206E+01	.195E+01	.193E+01
.398E+01	.188E+01	.215E+01	.192E+01	.189E+01	.188E+01
.631E+01	.191E+01	.200E+01	.190E+01	.190E+01	.191E+01
.100E+02	.194E+01	.194E+01	.193E+01	.194E+01	.194E+01

TABLE 14. VALUES OF L4 FOR A=.35

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.550E+25	.542E+25	.549E+25	.550E+25	.550E+25
.158E-07	.138E+25	.135E+25	.137E+25	.138E+25	.138E+25
.251E-07	.344E+24	.338E+24	.343E+24	.344E+24	.344E+24
.398E-07	.861E+23	.841E+23	.856E+23	.860E+23	.861E+23
.631E-07	.215E+23	.209E+23	.214E+23	.215E+23	.215E+23
.100E-06	.536E+22	.520E+22	.532E+22	.535E+22	.536E+22
.158E-06	.134E+22	.129E+22	.132E+22	.133E+22	.134E+22
.251E-06	.332E+21	.320E+21	.329E+21	.332E+21	.332E+21
.398E-06	.826E+20	.791E+20	.818E+20	.825E+20	.826E+20
.631E-06	.205E+20	.195E+20	.203E+20	.205E+20	.205E+20
.100E-05	.508E+19	.481E+19	.501E+19	.507E+19	.508E+19
.158E-05	.126E+19	.118E+19	.124E+19	.125E+19	.126E+19
.251E-05	.310E+18	.289E+18	.305E+18	.309E+18	.310E+18
.398E-05	.765E+17	.705E+17	.749E+17	.762E+17	.765E+17
.631E-05	.188E+17	.171E+17	.183E+17	.187E+17	.188E+17
.100E-04	.460E+16	.415E+16	.448E+16	.458E+16	.460E+16
.158E-04	.112E+16	.100E+16	.109E+16	.112E+16	.112E+16
.251E-04	.273E+15	.240E+15	.264E+15	.272E+15	.273E+15
.398E-04	.662E+14	.572E+14	.638E+14	.658E+14	.662E+14
.631E-04	.160E+14	.136E+14	.153E+14	.159E+14	.160E+14
.100E-03	.383E+13	.319E+13	.366E+13	.380E+13	.383E+13
.158E-03	.915E+12	.746E+12	.869E+12	.907E+12	.915E+12
.251E-03	.217E+12	.173E+12	.205E+12	.215E+12	.217E+12
.398E-03	.512E+11	.398E+11	.480E+11	.507E+11	.512E+11
.631E-03	.120E+11	.905E+10	.112E+11	.118E+11	.120E+11
.100E-02	.279E+10	.204E+10	.257E+10	.275E+10	.279E+10
.158E-02	.642E+09	.454E+09	.587E+09	.632E+09	.642E+09
.251E-02	.147E+09	.100E+09	.133E+09	.144E+09	.147E+09
.398E-02	.332E+08	.218E+08	.298E+08	.326E+08	.332E+08
.631E-02	.745E+07	.472E+07	.660E+07	.729E+07	.745E+07
.100E-01	.165E+07	.101E+07	.145E+07	.162E+07	.165E+07
.158E-01	.365E+06	.217E+06	.317E+06	.356E+06	.365E+06
.251E-01	.801E+05	.471E+05	.688E+05	.780E+05	.801E+05
.398E-01	.176E+05	.106E+05	.150E+05	.171E+05	.176E+05
.631E-01	.390E+04	.254E+04	.333E+04	.378E+04	.390E+04
.100E+00	.883E+03	.683E+03	.766E+03	.859E+03	.883E+03
.158E+00	.210E+03	.215E+03	.190E+03	.205E+03	.210E+03
.251E+00	.542E+02	.801E+02	.538E+02	.537E+02	.542E+02
.398E+00	.163E+02	.352E+02	.188E+02	.165E+02	.163E+02
.631E+00	.629E+01	.181E+02	.858E+01	.661E+01	.629E+01
.100E+01	.356E+01	.108E+02	.522E+01	.382E+01	.356E+01
.158E+01	.305E+01	.754E+01	.410E+01	.321E+01	.305E+01
.251E+01	.349E+01	.603E+01	.393E+01	.353E+01	.349E+01
.398E+01	.443E+01	.542E+01	.432E+01	.437E+01	.443E+01
.631E+01	.559E+01	.534E+01	.510E+01	.547E+01	.559E+01
.100E+02	.663E+01	.562E+01	.606E+01	.651E+01	.663E+01

TABLE 15. VALUES OF L6 FOR A=.35

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.140E+17	.139E+17	.140E+17	.140E+17	.140E+17
.158E-07	.557E+16	.553E+16	.556E+16	.556E+16	.557E+16
.251E-07	.221E+16	.220E+16	.221E+16	.221E+16	.221E+16
.398E-07	.879E+15	.872E+15	.877E+15	.879E+15	.879E+15
.631E-07	.349E+15	.346E+15	.348E+15	.349E+15	.349E+15
.100E-06	.139E+15	.137E+15	.138E+15	.139E+15	.139E+15
.158E-06	.551E+14	.543E+14	.549E+14	.550E+14	.551E+14
.251E-06	.218E+14	.215E+14	.218E+14	.218E+14	.218E+14
.398E-06	.866E+13	.851E+13	.862E+13	.865E+13	.866E+13
.631E-06	.343E+13	.336E+13	.341E+13	.343E+13	.343E+13
.100E-05	.136E+13	.133E+13	.135E+13	.136E+13	.136E+13
.158E-05	.537E+12	.522E+12	.534E+12	.537E+12	.537E+12
.251E-05	.212E+12	.205E+12	.211E+12	.212E+12	.212E+12
.398E-05	.838E+11	.807E+11	.830E+11	.837E+11	.838E+11
.631E-05	.330E+11	.316E+11	.327E+11	.330E+11	.330E+11
.100E-04	.130E+11	.124E+11	.128E+11	.130E+11	.130E+11
.158E-04	.510E+10	.482E+10	.503E+10	.509E+10	.510E+10
.251E-04	.200E+10	.187E+10	.197E+10	.199E+10	.200E+10
.398E-04	.782E+09	.725E+09	.768E+09	.780E+09	.782E+09
.631E-04	.305E+09	.280E+09	.298E+09	.304E+09	.305E+09
.100E-03	.119E+09	.107E+09	.116E+09	.118E+09	.119E+09
.158E-03	.460E+08	.410E+08	.447E+08	.458E+08	.460E+08
.251E-03	.177E+08	.156E+08	.172E+08	.177E+08	.177E+08
.398E-03	.682E+07	.589E+07	.658E+07	.678E+07	.682E+07
.631E-03	.261E+07	.221E+07	.250E+07	.259E+07	.261E+07
.100E-02	.994E+06	.824E+06	.948E+06	.985E+06	.994E+06
.158E-02	.376E+06	.305E+06	.356E+06	.373E+06	.376E+06
.251E-02	.141E+06	.112E+06	.133E+06	.140E+06	.141E+06
.398E-02	.529E+05	.409E+05	.494E+05	.522E+05	.529E+05
.631E-02	.196E+05	.148E+05	.182E+05	.194E+05	.196E+05
.100E-01	.724E+04	.539E+04	.668E+04	.714E+04	.724E+04
.158E-01	.266E+04	.197E+04	.244E+04	.262E+04	.266E+04
.251E-01	.975E+03	.733E+03	.891E+03	.959E+03	.975E+03
.398E-01	.358E+03	.282E+03	.328E+03	.352E+03	.358E+03
.631E-01	.133E+03	.114E+03	.123E+03	.131E+03	.133E+03
.100E+00	.506E+02	.499E+02	.480E+02	.500E+02	.506E+02
.158E+00	.202E+02	.237E+02	.200E+02	.201E+02	.202E+02
.251E+00	.871E+01	.124E+02	.919E+01	.875E+01	.871E+01
.398E+00	.425E+01	.708E+01	.482E+01	.434E+01	.425E+01
.631E+00	.248E+01	.447E+01	.295E+01	.255E+01	.248E+01
.100E+01	.178E+01	.311E+01	.212E+01	.183E+01	.178E+01
.158E+01	.155E+01	.240E+01	.176E+01	.158E+01	.155E+01
.251E+01	.155E+01	.202E+01	.164E+01	.156E+01	.155E+01
.398E+01	.166E+01	.185E+01	.165E+01	.165E+01	.166E+01
.631E+01	.178E+01	.179E+01	.173E+01	.177E+01	.178E+01
.100E+02	.188E+01	.180E+01	.183E+01	.187E+01	.188E+01

TABLE 16. VALUES OF L22 FOR A=.35

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.606E+08	.605E+08	.606E+08	.606E+08	.606E+08
.158E-07	.382E+08	.382E+08	.382E+08	.382E+08	.382E+08
.251E-07	.241E+08	.241E+08	.241E+08	.241E+08	.241E+08
.398E-07	.152E+08	.152E+08	.152E+08	.152E+08	.152E+08
.631E-07	.959E+07	.957E+07	.959E+07	.959E+07	.959E+07
.100E-06	.605E+07	.604E+07	.605E+07	.605E+07	.605E+07
.158E-06	.381E+07	.380E+07	.381E+07	.381E+07	.381E+07
.251E-06	.240E+07	.240E+07	.240E+07	.240E+07	.240E+07
.398E-06	.152E+07	.151E+07	.151E+07	.152E+07	.152E+07
.631E-06	.956E+06	.951E+06	.955E+06	.955E+06	.956E+06
.100E-05	.602E+06	.599E+06	.601E+06	.602E+06	.602E+06
.158E-05	.379E+06	.377E+06	.379E+06	.379E+06	.379E+06
.251E-05	.239E+06	.237E+06	.239E+06	.239E+06	.239E+06
.398E-05	.150E+06	.149E+06	.150E+06	.150E+06	.150E+06
.631E-05	.947E+05	.936E+05	.945E+05	.947E+05	.947E+05
.100E-04	.596E+05	.588E+05	.594E+05	.595E+05	.596E+05
.158E-04	.375E+05	.369E+05	.373E+05	.374E+05	.375E+05
.251E-04	.235E+05	.231E+05	.234E+05	.235E+05	.235E+05
.398E-04	.148E+05	.145E+05	.147E+05	.148E+05	.148E+05
.631E-04	.927E+04	.903E+04	.921E+04	.926E+04	.927E+04
.100E-03	.581E+04	.563E+04	.577E+04	.580E+04	.581E+04
.158E-03	.363E+04	.351E+04	.360E+04	.363E+04	.363E+04
.251E-03	.227E+04	.218E+04	.225E+04	.227E+04	.227E+04
.398E-03	.142E+04	.135E+04	.140E+04	.141E+04	.142E+04
.631E-03	.883E+03	.834E+03	.871E+03	.881E+03	.883E+03
.100E-02	.549E+03	.514E+03	.540E+03	.547E+03	.549E+03
.158E-02	.340E+03	.316E+03	.334E+03	.339E+03	.340E+03
.251E-02	.210E+03	.194E+03	.206E+03	.210E+03	.210E+03
.398E-02	.130E+03	.119E+03	.127E+03	.129E+03	.130E+03
.631E-02	.800E+02	.729E+02	.779E+02	.796E+02	.800E+02
.100E-01	.491E+02	.449E+02	.478E+02	.489E+02	.491E+02
.158E-01	.302E+02	.280E+02	.294E+02	.300E+02	.302E+02
.251E-01	.186E+02	.177E+02	.181E+02	.185E+02	.186E+02
.398E-01	.115E+02	.115E+02	.113E+02	.114E+02	.115E+02
.631E-01	.720E+01	.766E+01	.716E+01	.718E+01	.720E+01
.100E+00	.461E+01	.528E+01	.468E+01	.461E+01	.461E+01
.158E+00	.306E+01	.377E+01	.319E+01	.308E+01	.306E+01
.251E+00	.215E+01	.278E+01	.229E+01	.217E+01	.215E+01
.398E+00	.161E+01	.213E+01	.175E+01	.164E+01	.161E+01
.631E+00	.131E+01	.169E+01	.142E+01	.133E+01	.131E+01
.100E+01	.115E+01	.141E+01	.122E+01	.116E+01	.115E+01
.158E+01	.106E+01	.123E+01	.111E+01	.107E+01	.106E+01
.251E+01	.102E+01	.112E+01	.104E+01	.103E+01	.102E+01
.398E+01	.101E+01	.106E+01	.102E+01	.101E+01	.101E+01
.631E+01	.100E+01	.102E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01

TABLE 17. VALUES OF L2 FOR A=.5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.121E+17	.120E+17	.121E+17	.121E+17	.121E+17
.158E-07	.480E+16	.477E+16	.479E+16	.480E+16	.480E+16
.251E-07	.191E+16	.190E+16	.190E+16	.191E+16	.191E+16
.398E-07	.758E+15	.753E+15	.757E+15	.758E+15	.758E+15
.631E-07	.301E+15	.299E+15	.301E+15	.301E+15	.301E+15
.100E-06	.120E+15	.119E+15	.119E+15	.120E+15	.120E+15
.158E-06	.476E+14	.471E+14	.474E+14	.475E+14	.476E+14
.251E-06	.189E+14	.187E+14	.188E+14	.189E+14	.189E+14
.398E-06	.749E+13	.739E+13	.747E+13	.749E+13	.749E+13
.631E-06	.297E+13	.292E+13	.296E+13	.297E+13	.297E+13
.100E-05	.118E+13	.116E+13	.117E+13	.118E+13	.118E+13
.158E-05	.466E+12	.457E+12	.464E+12	.466E+12	.466E+12
.251E-05	.185E+12	.180E+12	.184E+12	.184E+12	.185E+12
.398E-05	.730E+11	.709E+11	.725E+11	.729E+11	.730E+11
.631E-05	.288E+11	.279E+11	.286E+11	.288E+11	.288E+11
.100E-04	.114E+11	.110E+11	.113E+11	.114E+11	.114E+11
.158E-04	.448E+10	.430E+10	.444E+10	.448E+10	.448E+10
.251E-04	.176E+10	.168E+10	.174E+10	.176E+10	.176E+10
.398E-04	.693E+09	.656E+09	.683E+09	.691E+09	.693E+09
.631E-04	.272E+09	.255E+09	.267E+09	.271E+09	.272E+09
.100E-03	.106E+09	.990E+08	.104E+09	.106E+09	.106E+09
.158E-03	.415E+08	.383E+08	.407E+08	.413E+08	.415E+08
.251E-03	.162E+08	.148E+08	.158E+08	.161E+08	.162E+08
.398E-03	.627E+07	.568E+07	.612E+07	.625E+07	.627E+07
.631E-03	.243E+07	.217E+07	.236E+07	.242E+07	.243E+07
.100E-02	.938E+06	.829E+06	.909E+06	.933E+06	.938E+06
.158E-02	.361E+06	.315E+06	.348E+06	.359E+06	.361E+06
.251E-02	.138E+06	.119E+06	.133E+06	.137E+06	.138E+06
.398E-02	.529E+05	.451E+05	.507E+05	.525E+05	.529E+05
.631E-02	.202E+05	.170E+05	.193E+05	.200E+05	.202E+05
.100E-01	.768E+04	.643E+04	.732E+04	.762E+04	.768E+04
.158E-01	.293E+04	.244E+04	.278E+04	.290E+04	.293E+04
.251E-01	.112E+04	.939E+03	.106E+04	.111E+04	.112E+04
.398E-01	.429E+03	.371E+03	.407E+03	.424E+03	.429E+03
.631E-01	.167E+03	.153E+03	.159E+03	.165E+03	.167E+03
.100E+00	.664E+02	.670E+02	.642E+02	.659E+02	.664E+02
.158E+00	.276E+02	.316E+02	.274E+02	.275E+02	.276E+02
.251E+00	.122E+02	.162E+02	.127E+02	.123E+02	.122E+02
.398E+00	.605E+01	.903E+01	.666E+01	.614E+01	.605E+01
.631E+00	.349E+01	.554E+01	.400E+01	.357E+01	.349E+01
.100E+01	.243E+01	.376E+01	.278E+01	.249E+01	.243E+01
.158E+01	.201E+01	.282E+01	.221E+01	.204E+01	.201E+01
.251E+01	.189E+01	.232E+01	.197E+01	.190E+01	.189E+01
.398E+01	.188E+01	.207E+01	.190E+01	.188E+01	.188E+01
.631E+01	.192E+01	.196E+01	.190E+01	.192E+01	.192E+01
.100E+02	.196E+01	.193E+01	.194E+01	.195E+01	.196E+01

TABLE 18. VALUES OF L4 FOR A=.5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.468E+25	.459E+25	.466E+25	.468E+25	.468E+25
.158E-07	.117E+25	.114E+25	.116E+25	.117E+25	.117E+25
.251E-07	.292E+24	.284E+24	.290E+24	.292E+24	.292E+24
.398E-07	.728E+23	.706E+23	.722E+23	.727E+23	.728E+23
.631E-07	.181E+23	.175E+23	.180E+23	.181E+23	.181E+23
.100E-06	.451E+22	.433E+22	.446E+22	.450E+22	.451E+22
.158E-06	.112E+22	.107E+22	.111E+22	.112E+22	.112E+22
.251E-06	.278E+21	.264E+21	.274E+21	.277E+21	.278E+21
.398E-06	.688E+20	.648E+20	.678E+20	.686E+20	.688E+20
.631E-06	.170E+20	.159E+20	.167E+20	.169E+20	.170E+20
.100E-05	.419E+19	.388E+19	.411E+19	.417E+19	.419E+19
.158E-05	.103E+19	.945E+18	.101E+19	.103E+19	.103E+19
.251E-05	.253E+18	.229E+18	.247E+18	.252E+18	.253E+18
.398E-05	.618E+17	.554E+17	.601E+17	.615E+17	.618E+17
.631E-05	.150E+17	.133E+17	.146E+17	.150E+17	.150E+17
.100E-04	.365E+16	.318E+16	.353E+16	.363E+16	.365E+16
.158E-04	.883E+15	.757E+15	.849E+15	.877E+15	.883E+15
.251E-04	.212E+15	.179E+15	.203E+15	.211E+15	.212E+15
.398E-04	.508E+14	.419E+14	.484E+14	.504E+14	.508E+14
.631E-04	.121E+14	.976E+13	.115E+14	.120E+14	.121E+14
.100E-03	.286E+13	.225E+13	.269E+13	.283E+13	.286E+13
.158E-03	.671E+12	.514E+12	.627E+12	.663E+12	.671E+12
.251E-03	.156E+12	.116E+12	.145E+12	.154E+12	.156E+12
.398E-03	.361E+11	.260E+11	.332E+11	.356E+11	.361E+11
.631E-03	.827E+10	.574E+10	.753E+10	.813E+10	.827E+10
.100E-02	.187E+10	.125E+10	.169E+10	.184E+10	.187E+10
.158E-02	.420E+09	.268E+09	.374E+09	.411E+09	.420E+09
.251E-02	.929E+08	.567E+08	.818E+08	.909E+08	.929E+08
.398E-02	.203E+08	.118E+08	.176E+08	.198E+08	.203E+08
.631E-02	.438E+07	.242E+07	.375E+07	.427E+07	.438E+07
.100E-01	.933E+06	.493E+06	.787E+06	.906E+06	.933E+06
.158E-01	.196E+06	.100E+06	.163E+06	.190E+06	.196E+06
.251E-01	.408E+05	.207E+05	.335E+05	.394E+05	.408E+05
.398E-01	.841E+04	.453E+04	.686E+04	.811E+04	.841E+04
.631E-01	.174E+04	.111E+04	.142E+04	.167E+04	.174E+04
.100E+00	.364E+03	.327E+03	.309E+03	.352E+03	.364E+03
.158E+00	.796E+02	.117E+03	.745E+02	.779E+02	.796E+02
.251E+00	.193E+02	.496E+02	.220E+02	.195E+02	.193E+02
.398E+00	.598E+01	.242E+02	.890E+01	.635E+01	.598E+01
.631E+00	.296E+01	.135E+02	.503E+01	.325E+01	.296E+01
.100E+01	.249E+01	.863E+01	.377E+01	.267E+01	.249E+01
.158E+01	.290E+01	.635E+01	.349E+01	.296E+01	.290E+01
.251E+01	.378E+01	.533E+01	.377E+01	.372E+01	.378E+01
.398E+01	.492E+01	.501E+01	.446E+01	.480E+01	.492E+01
.631E+01	.607E+01	.516E+01	.543E+01	.594E+01	.607E+01
.100E+02	.697E+01	.564E+01	.643E+01	.687E+01	.697E+01

TABLE 19. VALUES OF L6 FOR A=.5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.120E+17	.119E+17	.120E+17	.120E+17	.120E+17
.158E-07	.477E+16	.473E+16	.476E+16	.477E+16	.477E+16
.251E-07	.189E+16	.187E+16	.189E+16	.189E+16	.189E+16
.398E-07	.752E+15	.743E+15	.750E+15	.752E+15	.752E+15
.631E-07	.298E+15	.294E+15	.297E+15	.298E+15	.298E+15
.100E-06	.118E+15	.116E+15	.118E+15	.118E+15	.118E+15
.158E-06	.469E+14	.460E+14	.467E+14	.469E+14	.469E+14
.251E-06	.186E+14	.182E+14	.185E+14	.186E+14	.186E+14
.398E-06	.735E+13	.716E+13	.730E+13	.734E+13	.735E+13
.631E-06	.291E+13	.282E+13	.288E+13	.290E+13	.291E+13
.100E-05	.115E+13	.111E+13	.114E+13	.115E+13	.115E+13
.158E-05	.453E+12	.435E+12	.448E+12	.452E+12	.453E+12
.251E-05	.178E+12	.170E+12	.176E+12	.178E+12	.178E+12
.398E-05	.700E+11	.664E+11	.691E+11	.699E+11	.700E+11
.631E-05	.275E+11	.258E+11	.271E+11	.274E+11	.275E+11
.100E-04	.108E+11	.100E+11	.106E+11	.107E+11	.108E+11
.158E-04	.420E+10	.387E+10	.412E+10	.419E+10	.420E+10
.251E-04	.164E+10	.149E+10	.160E+10	.163E+10	.164E+10
.398E-04	.635E+09	.571E+09	.618E+09	.632E+09	.635E+09
.631E-04	.245E+09	.217E+09	.238E+09	.244E+09	.245E+09
.100E-03	.945E+08	.823E+08	.913E+08	.939E+08	.945E+08
.158E-03	.362E+08	.310E+08	.348E+08	.360E+08	.362E+08
.251E-03	.138E+08	.116E+08	.132E+08	.137E+08	.138E+08
.398E-03	.523E+07	.429E+07	.498E+07	.519E+07	.523E+07
.631E-03	.197E+07	.157E+07	.186E+07	.195E+07	.197E+07
.100E-02	.737E+06	.573E+06	.692E+06	.729E+06	.737E+06
.158E-02	.274E+06	.207E+06	.255E+06	.270E+06	.274E+06
.251E-02	.101E+06	.740E+05	.930E+05	.993E+05	.101E+06
.398E-02	.367E+05	.263E+05	.336E+05	.362E+05	.367E+05
.631E-02	.133E+05	.929E+04	.121E+05	.131E+05	.133E+05
.100E-01	.476E+04	.330E+04	.429E+04	.468E+04	.476E+04
.158E-01	.170E+04	.119E+04	.152E+04	.166E+04	.170E+04
.251E-01	.603E+03	.442E+03	.541E+03	.591E+03	.603E+03
.398E-01	.215E+03	.174E+03	.195E+03	.211E+03	.215E+03
.631E-01	.776E+02	.735E+02	.722E+02	.764E+02	.776E+02
.100E+00	.290E+02	.340E+02	.283E+02	.288E+02	.290E+02
.158E+00	.116E+02	.172E+02	.122E+02	.117E+02	.116E+02
.251E+00	.521E+01	.955E+01	.598E+01	.532E+01	.521E+01
.398E+00	.279E+01	.575E+01	.342E+01	.288E+01	.279E+01
.631E+00	.186E+01	.379E+01	.231E+01	.193E+01	.186E+01
.100E+01	.154E+01	.274E+01	.182E+01	.158E+01	.154E+01
.158E+01	.150E+01	.218E+01	.162E+01	.151E+01	.150E+01
.251E+01	.158E+01	.189E+01	.159E+01	.157E+01	.158E+01
.398E+01	.171E+01	.177E+01	.166E+01	.170E+01	.171E+01
.631E+01	.183E+01	.175E+01	.177E+01	.182E+01	.183E+01
.100E+02	.191E+01	.179E+01	.187E+01	.190E+01	.191E+01

TABLE **20**. VALUES OF L22 FOR A=.5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.367E+08	.366E+08	.367E+08	.367E+08	.367E+08
.158E-07	.231E+08	.231E+08	.231E+08	.231E+08	.231E+08
.251E-07	.146E+08	.145E+08	.146E+08	.146E+08	.146E+08
.398E-07	.919E+07	.916E+07	.918E+07	.919E+07	.919E+07
.631E-07	.579E+07	.577E+07	.579E+07	.579E+07	.579E+07
.100E-06	.365E+07	.363E+07	.365E+07	.365E+07	.365E+07
.158E-06	.230E+07	.228E+07	.230E+07	.230E+07	.230E+07
.251E-06	.145E+07	.144E+07	.145E+07	.145E+07	.145E+07
.398E-06	.912E+06	.903E+06	.910E+06	.912E+06	.912E+06
.631E-06	.574E+06	.567E+06	.572E+06	.574E+06	.574E+06
.100E-05	.361E+06	.356E+06	.360E+06	.361E+06	.361E+06
.158E-05	.227E+06	.223E+06	.226E+06	.227E+06	.227E+06
.251E-05	.142E+06	.140E+06	.142E+06	.142E+06	.142E+06
.398E-05	.894E+05	.874E+05	.890E+05	.893E+05	.894E+05
.631E-05	.561E+05	.546E+05	.557E+05	.560E+05	.561E+05
.100E-04	.351E+05	.340E+05	.349E+05	.351E+05	.351E+05
.158E-04	.220E+05	.212E+05	.218E+05	.219E+05	.220E+05
.251E-04	.137E+05	.131E+05	.136E+05	.137E+05	.137E+05
.398E-04	.855E+04	.813E+04	.845E+04	.853E+04	.855E+04
.631E-04	.532E+04	.502E+04	.525E+04	.531E+04	.532E+04
.100E-03	.330E+04	.309E+04	.325E+04	.329E+04	.330E+04
.158E-03	.204E+04	.189E+04	.201E+04	.204E+04	.204E-04
.251E-03	.126E+04	.115E+04	.123E+04	.126E+04	.126E+04
.398E-03	.775E+03	.701E+03	.756E+03	.772E+03	.775E+03
.631E-03	.475E+03	.424E+03	.462E+03	.473E+03	.475E+03
.100E-02	.290E+03	.256E+03	.281E+03	.288E+03	.290E+03
.158E-02	.176E+03	.154E+03	.170E+03	.175E+03	.176E+03
.251E-02	.106E+03	.925E+02	.102E+03	.106E+03	.106E+03
.398E-02	.641E+02	.559E+02	.616E+02	.637E+02	.641E+02
.631E-02	.385E+02	.343E+02	.370E+02	.382E+02	.385E+02
.100E-01	.231E+02	.215E+02	.223E+02	.230E+02	.231E+02
.158E-01	.139E+02	.139E+02	.136E+02	.139E+02	.139E+02
.251E-01	.851E+01	.939E+01	.843E+01	.848E+01	.851E+01
.398E-01	.532E+01	.661E+01	.543E+01	.532E+01	.532E+01
.631E-01	.346E+01	.482E+01	.367E+01	.348E+01	.346E+01
.100E+00	.239E+01	.362E+01	.263E+01	.242E+01	.239E+01
.158E+00	.178E+01	.278E+01	.200E+01	.181E+01	.178E+01
.251E+00	.143E+01	.219E+01	.161E+01	.146E+01	.143E+01
.398E+00	.123E+01	.177E+01	.136E+01	.125E+01	.123E+01
.631E+00	.111E+01	.147E+01	.120E+01	.113E+01	.111E+01
.100E+01	.105E+01	.127E+01	.110E+01	.106E+01	.105E+01
.158E+01	.102E+01	.115E+01	.105E+01	.102E+01	.102E+01
.251E+01	.101E+01	.107E+01	.102E+01	.101E+01	.101E+01
.398E+01	.100E+01	.103E+01	.101E+01	.100E+01	.100E+01
.631E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 21. VALUES OF L2 FOR A=1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.726E+16	.719E+16	.724E+16	.725E+16	.726E+16
.158E-07	.288E+16	.285E+16	.287E+16	.288E+16	.288E+16
.251E-07	.114E+16	.113E+16	.114E+16	.114E+16	.114E+16
.398E-07	.454E+15	.447E+15	.452E+15	.453E+15	.454E+15
.631E-07	.180E+15	.177E+15	.179E+15	.180E+15	.180E+15
.100E-06	.713E+14	.700E+14	.710E+14	.712E+14	.713E+14
.158E-06	.282E+14	.276E+14	.281E+14	.282E+14	.282E+14
.251E-06	.112E+14	.109E+14	.111E+14	.112E+14	.112E+14
.398E-06	.441E+13	.429E+13	.438E+13	.441E+13	.441E+13
.631E-06	.174E+13	.169E+13	.173E+13	.174E+13	.174E+13
.100E-05	.687E+12	.662E+12	.681E+12	.686E+12	.687E+12
.158E-05	.271E+12	.259E+12	.268E+12	.270E+12	.271E+12
.251E-05	.106E+12	.101E+12	.105E+12	.106E+12	.106E+12
.398E-05	.418E+11	.395E+11	.412E+11	.417E+11	.418E+11
.631E-05	.164E+11	.154E+11	.161E+11	.163E+11	.164E+11
.100E-04	.640E+10	.596E+10	.629E+10	.638E+10	.640E+10
.158E-04	.249E+10	.230E+10	.245E+10	.249E+10	.249E+10
.251E-04	.970E+09	.888E+09	.949E+09	.966E+09	.970E+09
.398E-04	.376E+09	.341E+09	.367E+09	.375E+09	.376E+09
.631E-04	.145E+09	.130E+09	.141E+09	.145E+09	.145E+09
.100E-03	.560E+08	.496E+08	.543E+08	.557E+08	.560E+08
.158E-03	.215E+08	.188E+08	.208E+08	.214E+08	.215E+08
.251E-03	.821E+07	.708E+07	.791E+07	.816E+07	.821E+07
.398E-03	.313E+07	.266E+07	.300E+07	.310E+07	.313E+07
.631E-03	.118E+07	.992E+06	.113E+07	.118E+07	.118E+07
.100E-02	.447E+06	.369E+06	.425E+06	.443E+06	.447E+06
.158E-02	.168E+06	.136E+06	.159E+06	.166E+06	.168E+06
.251E-02	.627E+05	.502E+05	.592E+05	.620E+05	.627E+05
.398E-02	.233E+05	.185E+05	.219E+05	.231E+05	.233E+05
.631E-02	.864E+04	.679E+04	.810E+04	.855E+04	.864E+04
.100E-01	.320E+04	.251E+04	.298E+04	.316E+04	.320E+04
.158E-01	.118E+04	.949E+03	.110E+04	.117E+04	.118E+04
.251E-01	.437E+03	.373E+03	.408E+03	.431E+03	.437E+03
.398E-01	.163E+03	.156E+03	.154E+03	.161E+03	.163E+03
.631E-01	.619E+02	.703E+02	.602E+02	.614E+02	.619E+02
.100E+00	.245E+02	.344E+02	.251E+02	.245E+02	.245E+02
.158E+00	.105E+02	.182E+02	.117E+02	.106E+02	.105E+02
.251E+00	.517E+01	.103E+02	.620E+01	.532E+01	.517E+01
.398E+00	.311E+01	.630E+01	.382E+01	.322E+01	.311E+01
.631E+00	.229E+01	.417E+01	.271E+01	.235E+01	.229E+01
.100E+01	.197E+01	.302E+01	.218E+01	.200E+01	.197E+01
.158E+01	.188E+01	.240E+01	.195E+01	.189E+01	.188E+01
.251E+01	.188E+01	.209E+01	.188E+01	.188E+01	.188E+01
.398E+01	.192E+01	.195E+01	.189E+01	.191E+01	.192E+01
.631E+01	.195E+01	.191E+01	.193E+01	.195E+01	.195E+01
.100E+02	.198E+01	.193E+01	.196E+01	.197E+01	.198E+01

TABLE 22. VALUES OF L4 FOR A=1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.272E+25	.262E+25	.270E+25	.272E+25	.272E+25
.158E-07	.676E+24	.646E+24	.669E+24	.675E+24	.676E+24
.251E-07	.168E+24	.159E+24	.165E+24	.167E+24	.168E+24
.398E-07	.414E+23	.391E+23	.409E+23	.413E+23	.414E+23
.631E-07	.102E+23	.957E+22	.101E+23	.102E+23	.102E+23
.100E-06	.252E+22	.234E+22	.247E+22	.251E+22	.252E+22
.158E-06	.619E+21	.569E+21	.606E+21	.617E+21	.619E+21
.251E-06	.152E+21	.138E+21	.148E+21	.151E+21	.152E+21
.398E-06	.370E+20	.332E+20	.361E+20	.369E+20	.370E+20
.631E-06	.901E+19	.798E+19	.874E+19	.896E+19	.901E+19
.100E-05	.218E+19	.191E+19	.211E+19	.217E+19	.218E+19
.158E-05	.526E+18	.452E+18	.507E+18	.523E+18	.526E+18
.251E-05	.126E+18	.107E+18	.121E+18	.125E+18	.126E+18
.398E-05	.302E+17	.250E+17	.288E+17	.299E+17	.302E+17
.631E-05	.716E+16	.580E+16	.680E+16	.710E+16	.716E+16
.100E-04	.169E+16	.133E+16	.159E+16	.167E+16	.169E+16
.158E-04	.395E+15	.304E+15	.370E+15	.391E+15	.395E+15
.251E-04	.917E+14	.684E+14	.853E+14	.906E+14	.917E+14
.398E-04	.211E+14	.152E+14	.195E+14	.208E+14	.211E+14
.631E-04	.481E+13	.334E+13	.439E+13	.473E+13	.481E+13
.100E-03	.108E+13	.722E+12	.979E+12	.106E+13	.108E+13
.158E-03	.241E+12	.153E+12	.215E+12	.236E+12	.241E+12
.251E-03	.528E+11	.320E+11	.467E+11	.517E+11	.528E+11
.398E-03	.114E+11	.652E+10	.994E+10	.112E+11	.114E+11
.631E-03	.243E+10	.130E+10	.208E+10	.236E+10	.243E+10
.100E-02	.505E+09	.250E+09	.425E+09	.491E+09	.505E+09
.158E-02	.103E+09	.466E+08	.848E+08	.996E+08	.103E+09
.251E-02	.205E+08	.832E+07	.165E+08	.197E+08	.205E+08
.398E-02	.395E+07	.140E+07	.308E+07	.379E+07	.395E+07
.631E-02	.735E+06	.217E+06	.554E+06	.701E+06	.735E+06
.100E-01	.131E+06	.291E+05	.939E+05	.124E+06	.131E+06
.158E-01	.219E+05	.285E+04	.146E+05	.205E+05	.219E+05
.251E-01	.331E+04	.498E+02	.192E+04	.304E+04	.331E+04
.398E-01	.403E+03	-.315E+02	.154E+03	.352E+03	.403E+03
.631E-01	.167E+02	.237E+02	-.218E+02	.794E+01	.167E+02
.100E+00	-.129E+02	.328E+02	-.155E+02	-.140E+02	-.129E+02
.158E+00	-.664E+01	.249E+02	-.452E+01	-.658E+01	-.664E+01
.251E+00	-.188E+01	.164E+02	.666E-01	-.171E+01	-.188E+01
.398E+00	.399E+00	.106E+02	.163E+01	.509E+00	.399E+00
.631E+00	.165E+01	.722E+01	.223E+01	.168E+01	.165E+01
.100E+01	.264E+01	.541E+01	.268E+01	.259E+01	.264E+01
.158E+01	.368E+01	.457E+01	.329E+01	.356E+01	.368E+01
.251E+01	.483E+01	.435E+01	.414E+01	.467E+01	.483E+01
.398E+01	.596E+01	.459E+01	.520E+01	.581E+01	.596E+01
.631E+01	.686E+01	.519E+01	.626E+01	.676E+01	.686E+01
.100E+02	.744E+01	.601E+01	.707E+01	.738E+01	.744E+01

TABLE 23. VALUES OF L6 FOR A=1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.717E+16	.705E+16	.714E+16	.716E+16	.717E+16
.158E-07	.284E+16	.279E+16	.283E+16	.284E+16	.284E+16
.251E-07	.112E+16	.110E+16	.112E+16	.112E+16	.112E+16
.398E-07	.445E+15	.433E+15	.442E+15	.444E+15	.445E+15
.631E-07	.176E+15	.170E+15	.174E+15	.176E+15	.176E+15
.100E-06	.693E+14	.670E+14	.688E+14	.693E+14	.693E+14
.158E-06	.273E+14	.263E+14	.271E+14	.273E+14	.273E+14
.251E-06	.108E+14	.103E+14	.106E+14	.107E+14	.108E+14
.398E-06	.422E+13	.400E+13	.417E+13	.422E+13	.422E+13
.631E-06	.166E+13	.156E+13	.163E+13	.165E+13	.166E+13
.100E-05	.648E+12	.603E+12	.637E+12	.646E+12	.648E+12
.158E-05	.253E+12	.233E+12	.248E+12	.252E+12	.253E+12
.251E-05	.982E+11	.895E+11	.961E+11	.978E+11	.982E+11
.398E-05	.381E+11	.342E+11	.371E+11	.379E+11	.381E+11
.631E-05	.147E+11	.130E+11	.143E+11	.146E+11	.147E+11
.100E-04	.565E+10	.492E+10	.546E+10	.561E+10	.565E+10
.158E-04	.216E+10	.185E+10	.208E+10	.215E+10	.216E+10
.251E-04	.821E+09	.689E+09	.787E+09	.815E+09	.821E+09
.398E-04	.310E+09	.254E+09	.296E+09	.308E+09	.310E+09
.631E-04	.117E+09	.930E+08	.110E+09	.115E+09	.117E+09
.100E-03	.434E+08	.337E+08	.408E+08	.430E+08	.434E+08
.158E-03	.160E+08	.120E+08	.149E+08	.158E+08	.160E+08
.251E-03	.586E+07	.425E+07	.542E+07	.578E+07	.586E+07
.398E-03	.212E+07	.148E+07	.194E+07	.209E+07	.212E+07
.631E-03	.758E+06	.509E+06	.687E+06	.746E+06	.758E+06
.100E-02	.268E+06	.172E+06	.240E+06	.263E+06	.268E+06
.158E-02	.932E+05	.576E+05	.824E+05	.912E+05	.932E+05
.251E-02	.320E+05	.191E+05	.279E+05	.312E+05	.320E+05
.398E-02	.108E+05	.631E+04	.934E+04	.105E+05	.108E+05
.631E-02	.359E+04	.211E+04	.308E+04	.350E+04	.359E+04
.100E-01	.118E+04	.726E+03	.101E+04	.115E+04	.118E+04
.158E-01	.385E+03	.266E+03	.332E+03	.375E+03	.385E+03
.251E-01	.126E+03	.108E+03	.112E+03	.123E+03	.126E+03
.398E-01	.420E+02	.491E+02	.396E+02	.413E+02	.420E+02
.631E-01	.149E+02	.251E+02	.155E+02	.149E+02	.149E+02
.100E+00	.596E+01	.141E+02	.701E+01	.608E+01	.596E+01
.158E+00	.293E+01	.852E+01	.382E+01	.304E+01	.293E+01
.251E+00	.187E+01	.544E+01	.249E+01	.195E+01	.187E+01
.398E+00	.150E+01	.369E+01	.189E+01	.155E+01	.150E+01
.631E+00	.142E+01	.268E+01	.161E+01	.144E+01	.142E+01
.100E+01	.146E+01	.212E+01	.152E+01	.146E+01	.146E+01
.158E+01	.156E+01	.182E+01	.153E+01	.155E+01	.156E+01
.251E+01	.169E+01	.170E+01	.162E+01	.168E+01	.169E+01
.398E+01	.181E+01	.169E+01	.174E+01	.180E+01	.181E+01
.631E+01	.190E+01	.174E+01	.185E+01	.189E+01	.190E+01
.100E+02	.195E+01	.183E+01	.192E+01	.195E+01	.195E+01

TABLE 24. VALUES OF L22 FOR A=1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.134E+08	.133E+08	.134E+08	.134E+08	.134E+08
.158E-07	.844E+07	.837E+07	.842E+07	.843E+07	.844E+07
.251E-07	.531E+07	.526E+07	.530E+07	.531E+07	.531E+07
.398E-07	.334E+07	.330E+07	.333E+07	.334E+07	.334E+07
.631E-07	.210E+07	.207E+07	.209E+07	.210E+07	.210E+07
.100E-06	.132E+07	.130E+07	.132E+07	.132E+07	.132E+07
.158E-06	.829E+06	.814E+06	.825E+06	.828E+06	.829E+06
.251E-06	.520E+06	.509E+06	.517E+06	.519E+06	.520E+06
.398E-06	.326E+06	.318E+06	.324E+06	.325E+06	.326E+06
.631E-06	.204E+06	.198E+06	.202E+06	.204E+06	.204E+06
.100E-05	.127E+06	.123E+06	.126E+06	.127E+06	.127E+06
.158E-05	.795E+05	.763E+05	.788E+05	.793E+05	.795E+05
.251E-05	.495E+05	.472E+05	.490E+05	.494E+05	.495E+05
.398E-05	.307E+05	.291E+05	.304E+05	.307E+05	.307E+05
.631E-05	.191E+05	.179E+05	.188E+05	.190E+05	.191E+05
.100E-04	.118E+05	.109E+05	.116E+05	.117E+05	.118E+05
.158E-04	.725E+04	.666E+04	.711E+04	.723E+04	.725E+04
.251E-04	.445E+04	.403E+04	.435E+04	.443E+04	.445E+04
.398E-04	.272E+04	.243E+04	.265E+04	.270E+04	.272E+04
.631E-04	.165E+04	.145E+04	.160E+04	.164E+04	.165E+04
.100E-03	.998E+03	.865E+03	.966E+03	.993E+03	.998E+03
.158E-03	.600E+03	.511E+03	.578E+03	.596E+03	.600E+03
.251E-03	.358E+03	.300E+03	.344E+03	.356E+03	.358E+03
.398E-03	.213E+03	.175E+03	.203E+03	.211E+03	.213E+03
.631E-03	.125E+03	.102E+03	.119E+03	.124E+03	.125E+03
.100E-02	.734E+02	.598E+02	.694E+02	.727E+02	.734E+02
.158E-02	.428E+02	.355E+02	.404E+02	.423E+02	.428E+02
.251E-02	.249E+02	.216E+02	.236E+02	.246E+02	.249E+02
.398E-02	.145E+02	.138E+02	.139E+02	.144E+02	.145E+02
.631E-02	.862E+01	.930E+01	.840E+01	.857E+01	.862E+01
.100E-01	.527E+01	.672E+01	.531E+01	.526E+01	.527E+01
.158E-01	.340E+01	.516E+01	.358E+01	.341E+01	.340E+01
.251E-01	.235E+01	.414E+01	.260E+01	.239E+01	.235E+01
.398E-01	.178E+01	.340E+01	.204E+01	.182E+01	.178E+01
.631E-01	.146E+01	.283E+01	.171E+01	.150E+01	.146E+01
.100E+00	.128E+01	.237E+01	.149E+01	.131E+01	.128E+01
.158E+00	.118E+01	.199E+01	.134E+01	.120E+01	.118E+01
.251E+00	.111E+01	.169E+01	.122E+01	.113E+01	.111E+01
.398E+00	.107E+01	.145E+01	.114E+01	.108E+01	.107E+01
.631E+00	.103E+01	.127E+01	.108E+01	.104E+01	.103E+01
.100E+01	.102E+01	.115E+01	.104E+01	.102E+01	.102E+01
.158E+01	.101E+01	.108E+01	.102E+01	.101E+01	.101E+01
.251E+01	.100E+01	.103E+01	.101E+01	.100E+01	.100E+01
.398E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 25. VALUES OF L2 FOR A=2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.260E+16	.255E+16	.259E+16	.260E+16	.260E+16
.158E-07	.103E+16	.100E+16	.102E+16	.103E+16	.103E+16
.251E-07	.406E+15	.396E+15	.404E+15	.406E+15	.406E+15
.398E-07	.160E+15	.155E+15	.159E+15	.160E+15	.160E+15
.631E-07	.632E+14	.610E+14	.627E+14	.631E+14	.632E+14
.100E-06	.249E+14	.239E+14	.246E+14	.248E+14	.249E+14
.158E-06	.976E+13	.933E+13	.966E+13	.975E+13	.976E+13
.251E-06	.383E+13	.364E+13	.378E+13	.382E+13	.383E+13
.398E-06	.150E+13	.141E+13	.148E+13	.149E+13	.150E+13
.631E-06	.585E+12	.548E+12	.576E+12	.583E+12	.585E+12
.100E-05	.228E+12	.212E+12	.224E+12	.227E+12	.228E+12
.158E-05	.884E+11	.814E+11	.867E+11	.881E+11	.884E+11
.251E-05	.342E+11	.312E+11	.335E+11	.341E+11	.342E+11
.398E-05	.132E+11	.119E+11	.129E+11	.132E+11	.132E+11
.631E-05	.508E+10	.453E+10	.494E+10	.505E+10	.508E+10
.100E-04	.194E+10	.171E+10	.189E+10	.193E+10	.194E+10
.158E-04	.741E+09	.646E+09	.717E+09	.737E+09	.741E+09
.251E-04	.281E+09	.242E+09	.271E+09	.280E+09	.281E+09
.398E-04	.106E+09	.901E+08	.102E+09	.106E+09	.106E+09
.631E-04	.399E+08	.334E+08	.382E+08	.396E+08	.399E+08
.100E-03	.149E+08	.123E+08	.142E+08	.148E+08	.149E+08
.158E-03	.555E+07	.450E+07	.527E+07	.550E+07	.555E+07
.251E-03	.205E+07	.164E+07	.194E+07	.203E+07	.205E+07
.398E-03	.754E+06	.592E+06	.711E+06	.747E+06	.754E+06
.631E-03	.276E+06	.213E+06	.259E+06	.273E+06	.276E+06
.100E-02	.100E+06	.759E+05	.936E+05	.990E+05	.100E+06
.158E-02	.361E+05	.270E+05	.336E+05	.357E+05	.361E+05
.251E-02	.130E+05	.955E+04	.120E+05	.128E+05	.130E+05
.398E-02	.462E+04	.339E+04	.426E+04	.456E+04	.462E+04
.631E-02	.164E+04	.123E+04	.151E+04	.162E+04	.164E+04
.100E-01	.579E+03	.464E+03	.533E+03	.571E+03	.579E+03
.158E-01	.205E+03	.191E+03	.190E+03	.202E+03	.205E+03
.251E-01	.731E+02	.876E+02	.701E+02	.723E+02	.731E+02
.398E-01	.270E+02	.450E+02	.278E+02	.270E+02	.270E+02
.631E-01	.109E+02	.253E+02	.126E+02	.111E+02	.109E+02
.100E+00	.524E+01	.150E+02	.671E+01	.543E+01	.524E+01
.158E+00	.318E+01	.938E+01	.422E+01	.332E+01	.318E+01
.251E+00	.238E+01	.610E+01	.303E+01	.247E+01	.238E+01
.398E+00	.205E+01	.418E+01	.240E+01	.210E+01	.205E+01
.631E+00	.191E+01	.306E+01	.208E+01	.193E+01	.191E+01
.100E+01	.187E+01	.242E+01	.192E+01	.187E+01	.187E+01
.158E+01	.188E+01	.209E+01	.187E+01	.188E+01	.188E+01
.251E+01	.192E+01	.193E+01	.189E+01	.191E+01	.192E+01
.398E+01	.195E+01	.190E+01	.193E+01	.195E+01	.195E+01
.631E+01	.197E+01	.191E+01	.196E+01	.197E+01	.197E+01
.100E+02	.199E+01	.195E+01	.198E+01	.199E+01	.199E+01

TABLE 26. VALUES OF L4 FOR A=2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.895E+24	.827E+24	.879E+24	.892E+24	.895E+24
.158E-07	.219E+24	.200E+24	.214E+24	.218E+24	.219E+24
.251E-07	.533E+23	.483E+23	.521E+23	.531E+23	.533E+23
.398E-07	.130E+23	.116E+23	.126E+23	.129E+23	.130E+23
.631E-07	.313E+22	.276E+22	.304E+22	.312E+22	.313E+22
.100E-06	.753E+21	.654E+21	.729E+21	.749E+21	.753E+21
.158E-06	.180E+21	.154E+21	.174E+21	.179E+21	.180E+21
.251E-06	.429E+20	.360E+20	.412E+20	.426E+20	.429E+20
.398E-06	.102E+20	.834E+19	.970E+19	.101E+20	.102E+20
.631E-06	.239E+19	.192E+19	.227E+19	.237E+19	.239E+19
.100E-05	.556E+18	.435E+18	.525E+18	.551E+18	.556E+18
.158E-05	.128E+18	.978E+17	.121E+18	.127E+18	.128E+18
.251E-05	.294E+17	.217E+17	.274E+17	.290E+17	.294E+17
.398E-05	.665E+16	.475E+16	.615E+16	.657E+16	.665E+16
.631E-05	.149E+16	.102E+16	.136E+16	.147E+16	.149E+16
.100E-04	.329E+15	.216E+15	.298E+15	.324E+15	.329E+15
.158E-04	.716E+14	.448E+14	.641E+14	.703E+14	.716E+14
.251E-04	.153E+14	.905E+13	.136E+14	.150E+14	.153E+14
.398E-04	.322E+13	.178E+13	.281E+13	.314E+13	.322E+13
.631E-04	.661E+12	.339E+12	.567E+12	.645E+12	.661E+12
.100E-03	.133E+12	.619E+11	.111E+12	.129E+12	.133E+12
.158E-03	.258E+11	.107E+11	.212E+11	.250E+11	.258E+11
.251E-03	.485E+10	.171E+10	.386E+10	.467E+10	.485E+10
.398E-03	.870E+09	.241E+09	.666E+09	.833E+09	.870E+09
.631E-03	.147E+09	.254E+08	.106E+09	.139E+09	.147E+09
.100E-02	.227E+08	.196E+06	.148E+08	.212E+08	.227E+08
.158E-02	.298E+07	-.973E+06	.154E+07	.271E+07	.298E+07
.251E-02	.257E+06	-.403E+06	.666E+04	.209E+06	.257E+06
.398E-02	-.195E+05	-.125E+06	-.607E+05	-.275E+05	-.195E+05
.631E-02	-.182E+05	-.348E+05	-.247E+05	-.195E+05	-.182E+05
.100E-01	-.649E+04	-.940E+04	-.753E+04	-.669E+04	-.649E+04
.158E-01	-.188E+04	-.255E+04	-.208E+04	-.192E+04	-.188E+04
.251E-01	-.509E+03	-.708E+03	-.560E+03	-.518E+03	-.509E+03
.398E-01	-.136E+03	-.197E+03	-.153E+03	-.139E+03	-.136E+03
.631E-01	-.368E+02	-.512E+02	-.439E+02	-.380E+02	-.368E+02
.100E+00	-.994E+01	-.923E+01	-.129E+02	-.105E+02	-.994E+01
.158E+00	-.206E+01	.206E+01	-.338E+01	-.238E+01	-.206E+01
.251E+00	.690E+00	.436E+01	-.200E-01	.481E+00	.690E+00
.398E+00	.201E+01	.429E+01	.143E+01	.184E+01	.201E+01
.631E+00	.297E+01	.385E+01	.231E+01	.280E+01	.297E+01
.100E+01	.391E+01	.359E+01	.312E+01	.373E+01	.391E+01
.158E+01	.493E+01	.364E+01	.405E+01	.475E+01	.493E+01
.251E+01	.594E+01	.405E+01	.510E+01	.578E+01	.594E+01
.398E+01	.679E+01	.478E+01	.615E+01	.668E+01	.679E+01
.631E+01	.738E+01	.573E+01	.698E+01	.732E+01	.738E+01
.100E+02	.771E+01	.665E+01	.750E+01	.768E+01	.771E+01

TABLE 27. VALUES OF L6 FOR A=2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.251E+16	.242E+16	.249E+16	.251E+16	.251E+16
.158E-07	.987E+15	.945E+15	.977E+15	.986E+15	.987E+15
.251E-07	.387E+15	.368E+15	.383E+15	.387E+15	.387E+15
.398E-07	.152E+15	.143E+15	.150E+15	.151E+15	.152E+15
.631E-07	.592E+14	.554E+14	.583E+14	.591E+14	.592E+14
.100E-06	.231E+14	.214E+14	.227E+14	.230E+14	.231E+14
.158E-06	.895E+13	.821E+13	.878E+13	.892E+13	.895E+13
.251E-06	.346E+13	.314E+13	.339E+13	.345E+13	.346E+13
.398E-06	.133E+13	.119E+13	.130E+13	.133E+13	.133E+13
.631E-06	.511E+12	.450E+12	.496E+12	.509E+12	.511E+12
.100E-05	.195E+12	.169E+12	.189E+12	.194E+12	.195E+12
.158E-05	.739E+11	.627E+11	.712E+11	.735E+11	.739E+11
.251E-05	.278E+11	.231E+11	.267E+11	.276E+11	.278E+11
.398E-05	.104E+11	.843E+10	.991E+10	.103E+11	.104E+11
.631E-05	.386E+10	.304E+10	.365E+10	.382E+10	.386E+10
.100E-04	.142E+10	.108E+10	.133E+10	.140E+10	.142E+10
.158E-04	.515E+09	.381E+09	.481E+09	.509E+09	.515E+09
.251E-04	.185E+09	.132E+09	.171E+09	.183E+09	.185E+09
.398E-04	.657E+08	.449E+08	.601E+08	.648E+08	.657E+08
.631E-04	.230E+08	.150E+08	.208E+08	.226E+08	.230E+08
.100E-03	.791E+07	.492E+07	.708E+07	.777E+07	.791E+07
.158E-03	.268E+07	.158E+07	.237E+07	.262E+07	.268E+07
.251E-03	.889E+06	.496E+06	.774E+06	.869E+06	.889E+06
.398E-03	.289E+06	.152E+06	.248E+06	.282E+06	.289E+06
.631E-03	.919E+05	.459E+05	.777E+05	.894E+05	.919E+05
.100E-02	.286E+05	.136E+05	.238E+05	.277E+05	.286E+05
.158E-02	.867E+04	.401E+04	.712E+04	.839E+04	.867E+04
.251E-02	.257E+04	.120E+04	.209E+04	.248E+04	.257E+04
.398E-02	.746E+03	.374E+03	.606E+03	.720E+03	.746E+03
.631E-02	.214E+03	.129E+03	.176E+03	.207E+03	.214E+03
.100E-01	.616E+02	.528E+02	.528E+02	.598E+02	.616E+02
.158E-01	.185E+02	.265E+02	.173E+02	.182E+02	.185E+02
.251E-01	.636E+01	.159E+02	.680E+01	.636E+01	.636E+01
.398E-01	.284E+01	.106E+02	.348E+01	.290E+01	.284E+01
.631E-01	.178E+01	.749E+01	.231E+01	.183E+01	.178E+01
.100E+00	.145E+01	.542E+01	.183E+01	.149E+01	.145E+01
.158E+00	.136E+01	.398E+01	.160E+01	.138E+01	.136E+01
.251E+00	.136E+01	.300E+01	.148E+01	.137E+01	.136E+01
.398E+00	.141E+01	.234E+01	.144E+01	.140E+01	.141E+01
.631E+00	.148E+01	.193E+01	.144E+01	.147E+01	.148E+01
.100E+01	.159E+01	.170E+01	.151E+01	.157E+01	.159E+01
.158E+01	.170E+01	.161E+01	.161E+01	.168E+01	.170E+01
.251E+01	.181E+01	.162E+01	.173E+01	.180E+01	.181E+01
.398E+01	.189E+01	.170E+01	.184E+01	.188E+01	.189E+01
.631E+01	.195E+01	.180E+01	.191E+01	.194E+01	.195E+01
.100E+02	.198E+01	.189E+01	.196E+01	.197E+01	.198E+01

TABLE 28. VALUES OF L22 FOR A=2

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.485E+07	.479E+07	.484E+07	.485E+07	.485E+07
.158E-07	.305E+07	.300E+07	.304E+07	.305E+07	.305E+07
.251E-07	.191E+07	.188E+07	.191E+07	.191E+07	.191E+07
.398E-07	.120E+07	.117E+07	.119E+07	.120E+07	.120E+07
.631E-07	.750E+06	.731E+06	.746E+06	.749E+06	.750E+06
.100E-06	.469E+06	.455E+06	.466E+06	.468E+06	.469E+06
.158E-06	.292E+06	.283E+06	.290E+06	.292E+06	.292E+06
.251E-06	.182E+06	.175E+06	.181E+06	.182E+06	.182E+06
.398E-06	.113E+06	.108E+06	.112E+06	.113E+06	.113E+06
.631E-06	.701E+05	.664E+05	.693E+05	.700E+05	.701E+05
.100E-05	.433E+05	.407E+05	.427E+05	.432E+05	.433E+05
.158E-05	.267E+05	.248E+05	.263E+05	.266E+05	.267E+05
.251E-05	.164E+05	.151E+05	.161E+05	.163E+05	.164E+05
.398E-05	.100E+05	.908E+04	.979E+04	.996E+04	.100E+05
.631E-05	.608E+04	.545E+04	.594E+04	.605E+04	.608E+04
.100E-04	.367E+04	.324E+04	.358E+04	.366E+04	.367E+04
.158E-04	.221E+04	.192E+04	.214E+04	.220E+04	.221E+04
.251E-04	.132E+04	.112E+04	.127E+04	.131E+04	.132E+04
.398E-04	.780E+03	.653E+03	.750E+03	.775E+03	.780E+03
.631E-04	.459E+03	.377E+03	.439E+03	.455E+03	.459E+03
.100E-03	.267E+03	.216E+03	.255E+03	.265E+03	.267E+03
.158E-03	.155E+03	.123E+03	.147E+03	.153E+03	.155E+03
.251E-03	.887E+02	.698E+02	.838E+02	.879E+02	.887E+02
.398E-03	.506E+02	.399E+02	.476E+02	.501E+02	.506E+02
.631E-03	.288E+02	.232E+02	.270E+02	.285E+02	.288E+02
.100E-02	.164E+02	.140E+02	.155E+02	.162E+02	.164E+02
.158E-02	.946E+01	.899E+01	.904E+01	.938E+01	.946E+01
.251E-02	.563E+01	.625E+01	.549E+01	.559E+01	.563E+01
.398E-02	.353E+01	.473E+01	.357E+01	.353E+01	.353E+01
.631E-02	.239E+01	.386E+01	.252E+01	.241E+01	.239E+01
.100E-01	.178E+01	.332E+01	.196E+01	.180E+01	.178E+01
.158E-01	.146E+01	.294E+01	.165E+01	.148E+01	.146E+01
.251E-01	.128E+01	.263E+01	.147E+01	.131E+01	.128E+01
.398E-01	.119E+01	.236E+01	.136E+01	.121E+01	.119E+01
.631E-01	.113E+01	.210E+01	.128E+01	.115E+01	.113E+01
.100E+00	.110E+01	.187E+01	.122E+01	.111E+01	.110E+01
.158E+00	.107E+01	.165E+01	.116E+01	.108E+01	.107E+01
.251E+00	.105E+01	.146E+01	.111E+01	.106E+01	.105E+01
.398E+00	.103E+01	.130E+01	.107E+01	.104E+01	.103E+01
.631E+00	.102E+01	.118E+01	.104E+01	.102E+01	.102E+01
.100E+01	.101E+01	.110E+01	.102E+01	.101E+01	.101E+01
.158E+01	.100E+01	.105E+01	.101E+01	.100E+01	.100E+01
.251E+01	.100E+01	.102E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 29. VALUES OF L2 FOR A=3

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.915E+15	.884E+15	.908E+15	.914E+15	.915E+15
.158E-07	.359E+15	.346E+15	.356E+15	.359E+15	.359E+15
.251E-07	.141E+15	.135E+15	.140E+15	.141E+15	.141E+15
.398E-07	.551E+14	.525E+14	.545E+14	.550E+14	.551E+14
.631E-07	.215E+14	.204E+14	.213E+14	.215E+14	.215E+14
.100E-06	.838E+13	.787E+13	.827E+13	.836E+13	.838E+13
.158E-06	.325E+13	.303E+13	.321E+13	.325E+13	.325E+13
.251E-06	.126E+13	.116E+13	.124E+13	.126E+13	.126E+13
.398E-06	.486E+12	.445E+12	.477E+12	.485E+12	.486E+12
.631E-06	.187E+12	.170E+12	.183E+12	.186E+12	.187E+12
.100E-05	.716E+11	.643E+11	.699E+11	.713E+11	.716E+11
.158E-05	.273E+11	.242E+11	.266E+11	.272E+11	.273E+11
.251E-05	.104E+11	.909E+10	.101E+11	.103E+11	.104E+11
.398E-05	.391E+10	.339E+10	.379E+10	.389E+10	.391E+10
.631E-05	.147E+10	.126E+10	.142E+10	.146E+10	.147E+10
.100E-04	.550E+09	.465E+09	.529E+09	.546E+09	.550E+09
.158E-04	.204E+09	.170E+09	.196E+09	.203E+09	.204E+09
.251E-04	.756E+08	.621E+08	.723E+08	.750E+08	.756E+08
.398E-04	.278E+08	.225E+08	.265E+08	.276E+08	.278E+08
.631E-04	.101E+08	.809E+07	.964E+07	.101E+08	.101E+08
.100E-03	.368E+07	.289E+07	.349E+07	.365E+07	.368E+07
.158E-03	.133E+07	.103E+07	.125E+07	.132E+07	.133E+07
.251E-03	.476E+06	.361E+06	.446E+06	.471E+06	.476E+06
.398E-03	.169E+06	.126E+06	.158E+06	.167E+06	.169E+06
.631E-03	.597E+05	.436E+05	.555E+05	.590E+05	.597E+05
.100E-02	.209E+05	.150E+05	.193E+05	.206E+05	.209E+05
.158E-02	.725E+04	.514E+04	.668E+04	.716E+04	.725E+04
.251E-02	.250E+04	.178E+04	.229E+04	.246E+04	.250E+04
.398E-02	.855E+03	.632E+03	.783E+03	.843E+03	.855E+03
.631E-02	.291E+03	.241E+03	.268E+03	.287E+03	.291E+03
.100E-01	.997E+02	.105E+03	.935E+02	.985E+02	.997E+02
.158E-01	.350E+02	.531E+02	.345E+02	.347E+02	.350E+02
.251E-01	.132E+02	.309E+02	.144E+02	.133E+02	.132E+02
.398E-01	.589E+01	.197E+02	.731E+01	.604E+01	.589E+01
.631E-01	.339E+01	.131E+02	.458E+01	.354E+01	.339E+01
.100E+00	.250E+01	.893E+01	.335E+01	.261E+01	.250E+01
.158E+00	.215E+01	.621E+01	.269E+01	.222E+01	.215E+01
.251E+00	.198E+01	.443E+01	.230E+01	.202E+01	.198E+01
.398E+00	.190E+01	.329E+01	.206E+01	.192E+01	.190E+01
.631E+00	.187E+01	.258E+01	.193E+01	.187E+01	.187E+01
.100E+01	.188E+01	.217E+01	.188E+01	.187E+01	.188E+01
.158E+01	.190E+01	.197E+01	.188E+01	.190E+01	.190E+01
.251E+01	.194E+01	.189E+01	.191E+01	.193E+01	.194E+01
.398E+01	.196E+01	.190E+01	.194E+01	.196E+01	.196E+01
.631E+01	.198E+01	.193E+01	.197E+01	.198E+01	.198E+01
.100E+02	.199E+01	.196E+01	.199E+01	.199E+01	.199E+01

TABLE 30. VALUES OF L4 FOR A=3

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.277E+24	.246E+24	.270E+24	.276E+24	.277E+24
.158E-07	.664E+23	.580E+23	.645E+23	.661E+23	.664E+23
.251E-07	.158E+23	.136E+23	.153E+23	.157E+23	.158E+23
.398E-07	.374E+22	.316E+22	.361E+22	.372E+22	.374E+22
.631E-07	.879E+21	.728E+21	.843E+21	.873E+21	.879E+21
.100E-06	.205E+21	.166E+21	.196E+21	.203E+21	.205E+21
.158E-06	.473E+20	.375E+20	.450E+20	.470E+20	.473E+20
.251E-06	.108E+20	.835E+19	.102E+20	.107E+20	.108E+20
.398E-06	.245E+19	.184E+19	.230E+19	.243E+19	.245E+19
.631E-06	.549E+18	.398E+18	.512E+18	.543E+18	.549E+18
.100E-05	.121E+18	.846E+17	.112E+18	.120E+18	.121E+18
.158E-05	.264E+17	.177E+17	.242E+17	.260E+17	.264E+17
.251E-05	.566E+16	.360E+16	.512E+16	.557E+16	.566E+16
.398E-05	.119E+16	.716E+15	.106E+16	.117E+16	.119E+16
.631E-05	.244E+15	.138E+15	.216E+15	.240E+15	.244E+15
.100E-04	.490E+14	.256E+14	.426E+14	.479E+14	.490E+14
.158E-04	.954E+13	.451E+13	.814E+13	.930E+13	.954E+13
.251E-04	.179E+13	.743E+12	.149E+13	.174E+13	.179E+13
.398E-04	.322E+12	.110E+12	.260E+12	.311E+12	.322E+12
.631E-04	.544E+11	.133E+11	.419E+11	.522E+11	.544E+11
.100E-03	.841E+10	.819E+09	.601E+10	.799E+10	.841E+10
.158E-03	.111E+10	-.207E+09	.672E+09	.103E+10	.111E+10
.251E-03	.984E+08	-.112E+09	.234E+08	.848E+08	.984E+08
.398E-03	-.558E+07	-.351E+08	-.172E+08	-.775E+07	-.558E+07
.631E-03	-.597E+07	-.924E+07	-.754E+07	-.627E+07	-.597E+07
.100E-02	-.207E+07	-.223E+07	-.222E+07	-.210E+07	-.207E+07
.158E-02	-.562E+06	-.517E+06	-.564E+06	-.564E+06	-.562E+06
.251E-02	-.136E+06	-.119E+06	-.132E+06	-.136E+06	-.136E+06
.398E-02	-.309E+05	-.282E+05	-.298E+05	-.307E+05	-.309E+05
.631E-02	-.679E+04	-.707E+04	-.665E+04	-.676E+04	-.679E+04
.100E-01	-.149E+04	-.194E+04	-.152E+04	-.149E+04	-.149E+04
.158E-01	-.335E+03	-.594E+03	-.367E+03	-.339E+03	-.335E+03
.251E-01	-.793E+02	-.201E+03	-.967E+02	-.818E+02	-.793E+02
.398E-01	-.197E+02	-.714E+02	-.285E+02	-.210E+02	-.197E+02
.631E-01	-.456E+01	-.244E+02	-.918E+01	-.530E+01	-.456E+01
.100E+00	-.166E+00	-.667E+01	-.273E+01	-.623E+00	-.166E+00
.158E+00	.147E+01	-.126E+00	-.977E-01	.116E+01	.147E+01
.251E+00	.236E+01	.208E+01	.124E+01	.212E+01	.236E+01
.398E+00	.309E+01	.272E+01	.213E+01	.288E+01	.309E+01
.631E+00	.385E+01	.292E+01	.290E+01	.365E+01	.385E+01
.100E+01	.470E+01	.313E+01	.374E+01	.451E+01	.470E+01
.158E+01	.562E+01	.354E+01	.471E+01	.545E+01	.562E+01
.251E+01	.648E+01	.424E+01	.572E+01	.635E+01	.648E+01
.398E+01	.715E+01	.518E+01	.663E+01	.706E+01	.715E+01
.631E+01	.758E+01	.618E+01	.728E+01	.753E+01	.758E+01
.100E+02	.781E+01	.701E+01	.766E+01	.778E+01	.781E+01

TABLE 31. VALUES OF L6 FOR A=3

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.849E+15	.796E+15	.837E+15	.847E+15	.849E+15
.158E-07	.330E+15	.306E+15	.324E+15	.329E+15	.330E+15
.251E-07	.127E+15	.117E+15	.125E+15	.127E+15	.127E+15
.398E-07	.491E+14	.446E+14	.481E+14	.489E+14	.491E+14
.631E-07	.188E+14	.169E+14	.184E+14	.188E+14	.188E+14
.100E-06	.718E+13	.634E+13	.699E+13	.715E+13	.718E+13
.158E-06	.272E+13	.237E+13	.264E+13	.271E+13	.272E+13
.251E-06	.103E+13	.874E+12	.991E+12	.102E+13	.103E+13
.398E-06	.383E+12	.320E+12	.369E+12	.381E+12	.383E+12
.631E-06	.142E+12	.116E+12	.136E+12	.141E+12	.142E+12
.100E-05	.522E+11	.415E+11	.497E+11	.518E+11	.522E+11
.158E-05	.190E+11	.147E+11	.180E+11	.188E+11	.190E+11
.251E-05	.683E+10	.511E+10	.641E+10	.676E+10	.683E+10
.398E-05	.242E+10	.175E+10	.226E+10	.240E+10	.242E+10
.631E-05	.848E+09	.598E+09	.783E+09	.837E+09	.848E+09
.100E-04	.292E+09	.194E+09	.267E+09	.288E+09	.292E+09
.158E-04	.988E+08	.626E+08	.894E+08	.972E+08	.988E+08
.251E-04	.328E+08	.197E+08	.293E+08	.322E+08	.328E+08
.398E-04	.107E+08	.606E+07	.941E+07	.104E+08	.107E+08
.631E-04	.339E+07	.182E+07	.295E+07	.331E+07	.339E+07
.100E-03	.105E+07	.529E+06	.901E+06	.102E+07	.105E+07
.158E-03	.317E+06	.150E+06	.268E+06	.308E+06	.317E+06
.251E-03	.930E+05	.414E+05	.774E+05	.903E+05	.930E+05
.398E-03	.265E+05	.112E+05	.218E+05	.257E+05	.265E+05
.631E-03	.736E+04	.299E+04	.595E+04	.711E+04	.736E+04
.100E-02	.198E+04	.800E+03	.159E+04	.191E+04	.198E+04
.158E-02	.523E+03	.223E+03	.417E+03	.503E+03	.523E+03
.251E-02	.136E+03	.687E+02	.109E+03	.131E+03	.136E+03
.398E-02	.356E+02	.262E+02	.296E+02	.345E+02	.356E+02
.631E-02	.101E+02	.134E+02	.908E+01	.988E+01	.101E+02
.100E-01	.364E+01	.894E+01	.365E+01	.360E+01	.364E+01
.158E-01	.196E+01	.692E+01	.213E+01	.196E+01	.196E+01
.251E-01	.150E+01	.568E+01	.167E+01	.150E+01	.150E+01
.398E-01	.138E+01	.472E+01	.150E+01	.138E+01	.138E+01
.631E-01	.135E+01	.391E+01	.144E+01	.134E+01	.135E+01
.100E+00	.136E+01	.322E+01	.140E+01	.135E+01	.136E+01
.158E+00	.139E+01	.264E+01	.139E+01	.137E+01	.139E+01
.251E+00	.143E+01	.219E+01	.139E+01	.142E+01	.143E+01
.398E+00	.150E+01	.187E+01	.142E+01	.148E+01	.150E+01
.631E+00	.158E+01	.166E+01	.148E+01	.156E+01	.158E+01
.100E+01	.168E+01	.157E+01	.157E+01	.166E+01	.168E+01
.158E+01	.178E+01	.157E+01	.168E+01	.176E+01	.178E+01
.251E+01	.186E+01	.164E+01	.179E+01	.185E+01	.186E+01
.398E+01	.193E+01	.174E+01	.188E+01	.192E+01	.193E+01
.631E+01	.196E+01	.184E+01	.194E+01	.196E+01	.196E+01
.100E+02	.198E+01	.192E+01	.197E+01	.198E+01	.198E+01

TABLE 32. VALUES OF L22 FOR A=3

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.173E+07	.169E+07	.172E+07	.173E+07	.173E+07
.158E-07	.108E+07	.105E+07	.108E+07	.108E+07	.108E+07
.251E-07	.674E+06	.654E+06	.670E+06	.674E+06	.674E+06
.398E-07	.419E+06	.404E+06	.416E+06	.419E+06	.419E+06
.631E-07	.260E+06	.249E+06	.258E+06	.260E+06	.260E+06
.100E-06	.161E+06	.153E+06	.159E+06	.161E+06	.161E+06
.158E-06	.994E+05	.938E+05	.982E+05	.992E+05	.994E+05
.251E-06	.611E+05	.572E+05	.603E+05	.609E+05	.611E+05
.398E-06	.374E+05	.346E+05	.368E+05	.373E+05	.374E+05
.631E-06	.228E+05	.209E+05	.224E+05	.227E+05	.228E+05
.100E-05	.138E+05	.125E+05	.135E+05	.138E+05	.138E+05
.158E-05	.832E+04	.743E+04	.813E+04	.829E+04	.832E+04
.251E-05	.498E+04	.438E+04	.485E+04	.496E+04	.498E+04
.398E-05	.296E+04	.256E+04	.287E+04	.295E+04	.296E+04
.631E-05	.175E+04	.148E+04	.169E+04	.174E+04	.175E+04
.100E-04	.102E+04	.852E+03	.984E+03	.102E+04	.102E+04
.158E-04	.592E+03	.485E+03	.568E+03	.588E+03	.592E+03
.251E-04	.340E+03	.273E+03	.325E+03	.338E+03	.340E+03
.398E-04	.193E+03	.153E+03	.184E+03	.192E+03	.193E+03
.631E-04	.109E+03	.850E+02	.103E+03	.108E+03	.109E+03
.100E-03	.611E+02	.473E+02	.577E+02	.605E+02	.611E+02
.158E-03	.341E+02	.266E+02	.321E+02	.337E+02	.341E+02
.251E-03	.190E+02	.153E+02	.179E+02	.188E+02	.190E+02
.398E-03	.107E+02	.923E+01	.102E+02	.106E+02	.107E+02
.631E-03	.621E+01	.599E+01	.597E+01	.617E+01	.621E+01
.100E-02	.379E+01	.427E+01	.372E+01	.377E+01	.379E+01
.158E-02	.250E+01	.336E+01	.253E+01	.249E+01	.250E+01
.251E-02	.181E+01	.286E+01	.190E+01	.182E+01	.181E+01
.398E-02	.145E+01	.258E+01	.157E+01	.147E+01	.145E+01
.631E-02	.127E+01	.240E+01	.139E+01	.128E+01	.127E+01
.100E-01	.117E+01	.227E+01	.130E+01	.119E+01	.117E+01
.158E-01	.112E+01	.214E+01	.124E+01	.113E+01	.112E+01
.251E-01	.109E+01	.202E+01	.121E+01	.111E+01	.109E+01
.398E-01	.107E+01	.189E+01	.118E+01	.109E+01	.107E+01
.631E-01	.106E+01	.175E+01	.115E+01	.107E+01	.106E+01
.100E+00	.105E+01	.160E+01	.112E+01	.106E+01	.105E+01
.158E+00	.104E+01	.146E+01	.110E+01	.105E+01	.104E+01
.251E+00	.103E+01	.133E+01	.107E+01	.103E+01	.103E+01
.398E+00	.102E+01	.122E+01	.105E+01	.102E+01	.102E+01
.631E+00	.101E+01	.113E+01	.103E+01	.101E+01	.101E+01
.100E+01	.100E+01	.107E+01	.101E+01	.101E+01	.100E+01
.158E+01	.100E+01	.103E+01	.100E+01	.100E+01	.100E+01
.251E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 33. VALUES OF L2 FOR A=4

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.312E+15	.296E+15	.309E+15	.311E+15	.312E+15
.158E-07	.121E+15	.115E+15	.120E+15	.121E+15	.121E+15
.251E-07	.470E+14	.441E+14	.464E+14	.469E+14	.470E+14
.398E-07	.182E+14	.169E+14	.179E+14	.181E+14	.182E+14
.631E-07	.700E+13	.647E+13	.688E+13	.698E+13	.700E+13
.100E-06	.268E+13	.246E+13	.264E+13	.268E+13	.268E+13
.158E-06	.103E+13	.931E+12	.101E+13	.102E+13	.103E+13
.251E-06	.390E+12	.351E+12	.382E+12	.389E+12	.390E+12
.398E-06	.148E+12	.131E+12	.144E+12	.147E+12	.148E+12
.631E-06	.557E+11	.490E+11	.542E+11	.554E+11	.557E+11
.100E-05	.209E+11	.182E+11	.203E+11	.208E+11	.209E+11
.158E-05	.778E+10	.670E+10	.754E+10	.774E+10	.778E+10
.251E-05	.288E+10	.245E+10	.279E+10	.287E+10	.288E+10
.398E-05	.106E+10	.893E+09	.102E+10	.106E+10	.106E+10
.631E-05	.389E+09	.323E+09	.374E+09	.387E+09	.389E+09
.100E-04	.142E+09	.116E+09	.136E+09	.141E+09	.142E+09
.158E-04	.513E+08	.414E+08	.490E+08	.509E+08	.513E+08
.251E-04	.184E+08	.146E+08	.175E+08	.183E+08	.184E+08
.398E-04	.657E+07	.514E+07	.624E+07	.652E+07	.657E+07
.631E-04	.233E+07	.179E+07	.220E+07	.231E+07	.233E+07
.100E-03	.817E+06	.618E+06	.770E+06	.810E+06	.817E+06
.158E-03	.285E+06	.211E+06	.267E+06	.282E+06	.285E+06
.251E-03	.983E+05	.717E+05	.918E+05	.972E+05	.983E+05
.398E-03	.336E+05	.241E+05	.313E+05	.333E+05	.336E+05
.631E-03	.114E+05	.808E+04	.106E+05	.113E+05	.114E+05
.100E-02	.384E+04	.270E+04	.355E+04	.379E+04	.384E+04
.158E-02	.128E+04	.912E+03	.118E+04	.127E+04	.128E+04
.251E-02	.427E+03	.320E+03	.393E+03	.421E+03	.427E+03
.398E-02	.142E+03	.124E+03	.132E+03	.140E+03	.142E+03
.631E-02	.479E+02	.569E+02	.456E+02	.474E+02	.479E+02
.100E-01	.171E+02	.319E+02	.173E+02	.170E+02	.171E+02
.158E-01	.699E+01	.210E+02	.788E+01	.706E+01	.699E+01
.251E-01	.368E+01	.150E+02	.463E+01	.378E+01	.368E+01
.398E-01	.257E+01	.111E+02	.339E+01	.266E+01	.257E+01
.631E-01	.218E+01	.830E+01	.280E+01	.225E+01	.218E+01
.100E+00	.202E+01	.621E+01	.246E+01	.207E+01	.202E+01
.158E+00	.194E+01	.467E+01	.223E+01	.197E+01	.194E+01
.251E+00	.190E+01	.357E+01	.206E+01	.191E+01	.190E+01
.398E+00	.187E+01	.281E+01	.194E+01	.188E+01	.187E+01
.631E+00	.187E+01	.233E+01	.188E+01	.187E+01	.187E+01
.100E+01	.189E+01	.205E+01	.187E+01	.188E+01	.189E+01
.158E+01	.192E+01	.192E+01	.189E+01	.191E+01	.192E+01
.251E+01	.195E+01	.188E+01	.192E+01	.194E+01	.195E+01
.398E+01	.197E+01	.190E+01	.196E+01	.197E+01	.197E+01
.631E+01	.199E+01	.194E+01	.198E+01	.199E+01	.199E+01
.100E+02	.199E+01	.197E+01	.199E+01	.199E+01	.199E+01

TABLE 34. VALUES OF L4 FOR A=4

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.782E+23	.661E+23	.756E+23	.778E+23	.782E+23
.158E-07	.182E+23	.150E+23	.175E+23	.180E+23	.182E+23
.251E-07	.418E+22	.338E+22	.400E+22	.415E+22	.418E+22
.398E-07	.951E+21	.752E+21	.906E+21	.944E+21	.951E+21
.631E-07	.214E+21	.165E+21	.203E+21	.212E+21	.214E+21
.100E-06	.476E+20	.356E+20	.448E+20	.472E+20	.476E+20
.158E-06	.104E+20	.755E+19	.976E+19	.103E+20	.104E+20
.251E-06	.225E+19	.157E+19	.209E+19	.223E+19	.225E+19
.398E-06	.478E+18	.318E+18	.440E+18	.472E+18	.478E+18
.631E-06	.993E+17	.629E+17	.905E+17	.979E+17	.993E+17
.100E-05	.202E+17	.120E+17	.182E+17	.198E+17	.202E+17
.158E-05	.399E+16	.221E+16	.354E+16	.392E+16	.399E+16
.251E-05	.763E+15	.385E+15	.666E+15	.747E+15	.763E+15
.398E-05	.140E+15	.623E+14	.120E+15	.137E+15	.140E+15
.631E-05	.245E+14	.897E+13	.203E+14	.238E+14	.245E+14
.100E-04	.397E+13	.102E+13	.315E+13	.383E+13	.397E+13
.158E-04	.573E+12	.401E+11	.418E+12	.547E+12	.573E+12
.251E-04	.654E+11	-.241E+11	.380E+11	.607E+11	.654E+11
.398E-04	.276E+10	-.107E+11	-.173E+10	.197E+10	.276E+10
.631E-04	-.148E+10	-.316E+10	-.213E+10	-.160E+10	-.148E+10
.100E-03	-.672E+09	-.792E+09	-.745E+09	-.686E+09	-.672E+09
.158E-03	-.199E+09	-.181E+09	-.201E+09	-.199E+09	-.199E+09
.251E-03	-.497E+08	-.389E+08	-.481E+08	-.495E+08	-.497E+08
.398E-03	-.113E+08	-.804E+07	-.106E+08	-.112E+08	-.113E+08
.631E-03	-.241E+07	-.163E+07	-.222E+07	-.238E+07	-.241E+07
.100E-02	-.490E+06	-.332E+06	-.447E+06	-.483E+06	-.490E+06
.158E-02	-.967E+05	-.697E+05	-.882E+05	-.952E+05	-.967E+05
.251E-02	-.188E+05	-.156E+05	-.174E+05	-.185E+05	-.188E+05
.398E-02	-.366E+04	-.384E+04	-.353E+04	-.364E+04	-.366E+04
.631E-02	-.736E+03	-.109E+04	-.758E+03	-.738E+03	-.736E+03
.100E-01	-.156E+03	-.371E+03	-.178E+03	-.159E+03	-.156E+03
.158E-01	-.351E+02	-.148E+03	-.470E+02	-.367E+02	-.351E+02
.251E-01	-.771E+01	-.652E+02	-.143E+02	-.862E+01	-.771E+01
.398E-01	-.774E+00	-.292E+02	-.480E+01	-.137E+01	-.774E+00
.631E-01	.130E+01	-.122E+02	-.135E+01	.874E+00	.130E+01
.100E+00	.215E+01	-.397E+01	.289E+00	.182E+01	.215E+01
.158E+00	.269E+01	-.175E+00	.128E+01	.242E+01	.269E+01
.251E+00	.320E+01	.149E+01	.202E+01	.296E+01	.320E+01
.398E+00	.377E+01	.221E+01	.270E+01	.355E+01	.377E+01
.631E+00	.445E+01	.262E+01	.342E+01	.424E+01	.445E+01
.100E+01	.523E+01	.305E+01	.425E+01	.504E+01	.523E+01
.158E+01	.605E+01	.366E+01	.519E+01	.590E+01	.605E+01
.251E+01	.679E+01	.451E+01	.613E+01	.668E+01	.679E+01
.398E+01	.734E+01	.553E+01	.692E+01	.727E+01	.734E+01
.631E+01	.768E+01	.650E+01	.745E+01	.764E+01	.768E+01
.100E+02	.785E+01	.722E+01	.775E+01	.784E+01	.785E+01

TABLE 35. VALUES OF L6 FOR A=4

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.270E+15	.244E+15	.265E+15	.269E+15	.270E+15
.158E-07	.103E+15	.917E+14	.100E+15	.102E+15	.103E+15
.251E-07	.388E+14	.342E+14	.378E+14	.386E+14	.388E+14
.398E-07	.146E+14	.126E+14	.141E+14	.145E+14	.146E+14
.631E-07	.542E+13	.461E+13	.524E+13	.539E+13	.542E+13
.100E-06	.200E+13	.166E+13	.193E+13	.199E+13	.200E+13
.158E-06	.731E+12	.594E+12	.701E+12	.727E+12	.731E+12
.251E-06	.264E+12	.209E+12	.252E+12	.262E+12	.264E+12
.398E-06	.944E+11	.726E+11	.895E+11	.936E+11	.944E+11
.631E-06	.333E+11	.248E+11	.313E+11	.330E+11	.333E+11
.100E-05	.115E+11	.830E+10	.108E+11	.114E+11	.115E+11
.158E-05	.394E+10	.273E+10	.365E+10	.389E+10	.394E+10
.251E-05	.132E+10	.875E+09	.121E+10	.130E+10	.132E+10
.398E-05	.434E+09	.274E+09	.395E+09	.427E+09	.434E+09
.631E-05	.139E+09	.839E+08	.125E+09	.137E+09	.139E+09
.100E-04	.437E+08	.249E+08	.389E+08	.429E+08	.437E+08
.158E-04	.134E+08	.720E+07	.117E+08	.131E+08	.134E+08
.251E-04	.397E+07	.202E+07	.345E+07	.389E+07	.397E+07
.398E-04	.115E+07	.549E+06	.983E+06	.112E+07	.115E+07
.631E-04	.322E+06	.145E+06	.272E+06	.313E+06	.322E+06
.100E-03	.875E+05	.372E+05	.729E+05	.850E+05	.875E+05
.158E-03	.231E+05	.932E+04	.190E+05	.224E+05	.231E+05
.251E-03	.591E+04	.229E+04	.480E+04	.572E+04	.591E+04
.398E-03	.147E+04	.561E+03	.118E+04	.142E+04	.147E+04
.631E-03	.358E+03	.141E+03	.287E+03	.346E+03	.358E+03
.100E-02	.863E+02	.388E+02	.696E+02	.833E+02	.863E+02
.158E-02	.214E+02	.135E+02	.176E+02	.207E+02	.214E+02
.251E-02	.610E+01	.682E+01	.533E+01	.594E+01	.610E+01
.398E-02	.251E+01	.488E+01	.237E+01	.247E+01	.251E+01
.631E-02	.166E+01	.418E+01	.163E+01	.164E+01	.166E+01
.100E-01	.145E+01	.383E+01	.143E+01	.143E+01	.145E+01
.158E-01	.140E+01	.355E+01	.137E+01	.138E+01	.140E+01
.251E-01	.139E+01	.327E+01	.135E+01	.137E+01	.139E+01
.398E-01	.139E+01	.297E+01	.135E+01	.137E+01	.139E+01
.631E-01	.141E+01	.266E+01	.135E+01	.139E+01	.141E+01
.100E+00	.143E+01	.235E+01	.136E+01	.141E+01	.143E+01
.158E+00	.146E+01	.206E+01	.138E+01	.144E+01	.146E+01
.251E+00	.151E+01	.182E+01	.141E+01	.148E+01	.151E+01
.398E+00	.157E+01	.165E+01	.146E+01	.155E+01	.157E+01
.631E+00	.165E+01	.155E+01	.153E+01	.162E+01	.165E+01
.100E+01	.173E+01	.153E+01	.163E+01	.171E+01	.173E+01
.158E+01	.182E+01	.157E+01	.173E+01	.181E+01	.182E+01
.251E+01	.189E+01	.166E+01	.183E+01	.188E+01	.189E+01
.398E+01	.194E+01	.178E+01	.191E+01	.194E+01	.194E+01
.631E+01	.197E+01	.187E+01	.195E+01	.197E+01	.197E+01
.100E+02	.199E+01	.194E+01	.198E+01	.199E+01	.199E+01

TABLE 36. VALUES OF L22 FOR A=4

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.600E+06	.578E+06	.596E+06	.599E+06	.600E+06
.158E-07	.371E+06	.355E+06	.368E+06	.370E+06	.371E+06
.251E-07	.229E+06	.217E+06	.226E+06	.228E+06	.229E+06
.398E-07	.140E+06	.132E+06	.139E+06	.140E+06	.140E+06
.631E-07	.857E+05	.801E+05	.846E+05	.856E+05	.857E+05
.100E-06	.521E+05	.483E+05	.514E+05	.520E+05	.521E+05
.158E-06	.315E+05	.289E+05	.310E+05	.315E+05	.315E+05
.251E-06	.190E+05	.171E+05	.186E+05	.189E+05	.190E+05
.398E-06	.113E+05	.101E+05	.111E+05	.113E+05	.113E+05
.631E-06	.671E+04	.590E+04	.655E+04	.669E+04	.671E+04
.100E-05	.395E+04	.342E+04	.384E+04	.393E+04	.395E+04
.158E-05	.230E+04	.196E+04	.223E+04	.229E+04	.230E+04
.251E-05	.133E+04	.111E+04	.128E+04	.132E+04	.133E+04
.398E-05	.759E+03	.624E+03	.731E+03	.755E+03	.759E+03
.631E-05	.430E+03	.347E+03	.412E+03	.427E+03	.430E+03
.100E-04	.241E+03	.191E+03	.230E+03	.239E+03	.241E+03
.158E-04	.134E+03	.105E+03	.127E+03	.133E+03	.134E+03
.251E-04	.737E+02	.573E+02	.700E+02	.731E+02	.737E+02
.398E-04	.404E+02	.314E+02	.383E+02	.401E+02	.404E+02
.631E-04	.221E+02	.175E+02	.210E+02	.220E+02	.221E+02
.100E-03	.123E+02	.101E+02	.116E+02	.122E+02	.123E+02
.158E-03	.695E+01	.617E+01	.665E+01	.690E+01	.695E+01
.251E-03	.413E+01	.412E+01	.401E+01	.411E+01	.413E+01
.398E-03	.265E+01	.306E+01	.263E+01	.264E+01	.265E+01
.631E-03	.187E+01	.250E+01	.190E+01	.187E+01	.187E+01
.100E-02	.147E+01	.222E+01	.153E+01	.148E+01	.147E+01
.158E-02	.126E+01	.206E+01	.134E+01	.127E+01	.126E+01
.251E-02	.116E+01	.198E+01	.124E+01	.117E+01	.116E+01
.398E-02	.110E+01	.192E+01	.118E+01	.111E+01	.110E+01
.631E-02	.107E+01	.187E+01	.116E+01	.108E+01	.107E+01
.100E-01	.106E+01	.182E+01	.114E+01	.107E+01	.106E+01
.158E-01	.105E+01	.177E+01	.113E+01	.106E+01	.105E+01
.251E-01	.105E+01	.171E+01	.112E+01	.105E+01	.105E+01
.398E-01	.104E+01	.163E+01	.111E+01	.105E+01	.104E+01
.631E-01	.104E+01	.154E+01	.110E+01	.104E+01	.104E+01
.100E+00	.103E+01	.145E+01	.108E+01	.104E+01	.103E+01
.158E+00	.102E+01	.135E+01	.106E+01	.103E+01	.102E+01
.251E+00	.102E+01	.125E+01	.105E+01	.102E+01	.102E+01
.398E+00	.101E+01	.117E+01	.103E+01	.101E+01	.101E+01
.631E+00	.101E+01	.110E+01	.102E+01	.101E+01	.101E+01
.100E+01	.100E+01	.105E+01	.101E+01	.100E+01	.100E+01
.158E+01	.100E+01	.102E+01	.100E+01	.100E+01	.100E+01
.251E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 37. VALUES OF L2 FOR A=5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.101E+15	.944E+14	.998E+14	.101E+15	.101E+15
.158E-07	.388E+14	.359E+14	.382E+14	.387E+14	.388E+14
.251E-07	.148E+14	.136E+14	.145E+14	.147E+14	.148E+14
.398E-07	.562E+13	.511E+13	.551E+13	.560E+13	.562E+13
.631E-07	.212E+13	.192E+13	.208E+13	.212E+13	.212E+13
.100E-06	.798E+12	.714E+12	.781E+12	.796E+12	.798E+12
.158E-06	.299E+12	.265E+12	.292E+12	.298E+12	.299E+12
.251E-06	.111E+12	.974E+11	.108E+12	.111E+12	.111E+12
.398E-06	.411E+11	.357E+11	.400E+11	.409E+11	.411E+11
.631E-06	.151E+11	.130E+11	.147E+11	.150E+11	.151E+11
.100E-05	.553E+10	.469E+10	.535E+10	.550E+10	.553E+10
.158E-05	.201E+10	.168E+10	.194E+10	.200E+10	.201E+10
.251E-05	.724E+09	.600E+09	.698E+09	.720E+09	.724E+09
.398E-05	.260E+09	.212E+09	.249E+09	.258E+09	.260E+09
.631E-05	.924E+08	.745E+08	.885E+08	.917E+08	.924E+08
.100E-04	.326E+08	.259E+08	.311E+08	.324E+08	.326E+08
.158E-04	.114E+08	.894E+07	.109E+08	.113E+08	.114E+08
.251E-04	.396E+07	.306E+07	.376E+07	.393E+07	.396E+07
.398E-04	.136E+07	.104E+07	.129E+07	.135E+07	.136E+07
.631E-04	.465E+06	.348E+06	.439E+06	.461E+06	.465E+06
.100E-03	.157E+06	.116E+06	.148E+06	.156E+06	.157E+06
.158E-03	.527E+05	.383E+05	.494E+05	.522E+05	.527E+05
.251E-03	.175E+05	.126E+05	.164E+05	.173E+05	.175E+05
.398E-03	.579E+04	.413E+04	.540E+04	.572E+04	.579E+04
.631E-03	.190E+04	.135E+04	.177E+04	.188E+04	.190E+04
.100E-02	.620E+03	.451E+03	.577E+03	.613E+03	.620E+03
.158E-02	.203E+03	.158E+03	.189E+03	.200E+03	.203E+03
.251E-02	.668E+02	.624E+02	.629E+02	.661E+02	.668E+02
.398E-02	.229E+02	.305E+02	.221E+02	.227E+02	.229E+02
.631E-02	.871E+01	.190E+02	.898E+01	.871E+01	.871E+01
.100E-01	.415E+01	.140E+02	.469E+01	.419E+01	.415E+01
.158E-01	.267E+01	.111E+02	.324E+01	.273E+01	.267E+01
.251E-01	.219E+01	.909E+01	.270E+01	.224E+01	.219E+01
.398E-01	.202E+01	.740E+01	.244E+01	.206E+01	.202E+01
.631E-01	.195E+01	.597E+01	.228E+01	.198E+01	.195E+01
.100E+00	.191E+01	.477E+01	.215E+01	.194E+01	.191E+01
.158E+00	.189E+01	.380E+01	.204E+01	.190E+01	.189E+01
.251E+00	.187E+01	.306E+01	.196E+01	.188E+01	.187E+01
.398E+00	.187E+01	.252E+01	.190E+01	.187E+01	.187E+01
.631E+00	.188E+01	.217E+01	.187E+01	.187E+01	.188E+01
.100E+01	.190E+01	.197E+01	.188E+01	.190E+01	.190E+01
.158E+01	.193E+01	.189E+01	.190E+01	.193E+01	.193E+01
.251E+01	.196E+01	.188E+01	.193E+01	.195E+01	.196E+01
.398E+01	.198E+01	.191E+01	.196E+01	.198E+01	.198E+01
.631E+01	.199E+01	.195E+01	.198E+01	.199E+01	.199E+01
.100E+02	.200E+01	.197E+01	.199E+01	.199E+01	.200E+01

TABLE 38. VALUES OF L4 FOR A=5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.190E+23	.151E+23	.181E+23	.188E+23	.190E+23
.158E-07	.420E+22	.325E+22	.399E+22	.416E+22	.420E+22
.251E-07	.915E+21	.687E+21	.866E+21	.907E+21	.915E+21
.398E-07	.196E+21	.143E+21	.185E+21	.194E+21	.196E+21
.631E-07	.414E+20	.289E+20	.386E+20	.409E+20	.414E+20
.100E-06	.853E+19	.569E+19	.789E+19	.843E+19	.853E+19
.158E-06	.172E+19	.109E+19	.157E+19	.169E+19	.172E+19
.251E-06	.336E+18	.199E+18	.304E+18	.331E+18	.336E+18
.398E-06	.634E+17	.344E+17	.565E+17	.623E+17	.634E+17
.631E-06	.115E+17	.553E+16	.100E+17	.112E+17	.115E+17
.100E-05	.195E+16	.786E+15	.166E+16	.191E+16	.195E+16
.158E-05	.306E+15	.862E+14	.250E+15	.297E+15	.306E+15
.251E-05	.415E+14	.246E+13	.311E+14	.398E+14	.415E+14
.398E-05	.400E+13	-.240E+13	.221E+13	.370E+13	.400E+13
.631E-05	-.804E+11	-.101E+13	-.364E+12	-.128E+12	-.804E+11
.100E-04	-.185E+12	-.292E+12	-.224E+12	-.192E+12	-.185E+12
.158E-04	-.675E+11	-.720E+11	-.712E+11	-.682E+11	-.675E+11
.251E-04	-.185E+11	-.162E+11	-.184E+11	-.185E+11	-.185E+11
.398E-04	-.445E+10	-.342E+10	-.428E+10	-.442E+10	-.445E+10
.631E-04	-.981E+09	-.687E+09	-.921E+09	-.972E+09	-.981E+09
.100E-03	-.204E+09	-.133E+09	-.188E+09	-.201E+09	-.204E+09
.158E-03	-.403E+08	-.250E+08	-.367E+08	-.398E+08	-.403E+08
.251E-03	-.770E+07	-.465E+07	-.694E+07	-.758E+07	-.770E+07
.398E-03	-.143E+07	-.864E+06	-.128E+07	-.140E+07	-.143E+07
.631E-03	-.260E+06	-.164E+06	-.233E+06	-.255E+06	-.260E+06
.100E-02	-.467E+05	-.328E+05	-.424E+05	-.460E+05	-.467E+05
.158E-02	-.844E+04	-.712E+04	-.787E+04	-.834E+04	-.844E+04
.251E-02	-.156E+04	-.175E+04	-.153E+04	-.155E+04	-.156E+04
.398E-02	-.303E+03	-.519E+03	-.319E+03	-.305E+03	-.303E+03
.631E-02	-.625E+02	-.194E+03	-.740E+02	-.640E+02	-.625E+02
.100E-01	-.128E+02	-.899E+02	-.194E+02	-.137E+02	-.128E+02
.158E-01	-.152E+01	-.477E+02	-.566E+01	-.209E+01	-.152E+01
.251E-01	.140E+01	-.263E+02	-.157E+01	.964E+00	.140E+01
.398E-01	.230E+01	-.140E+02	.162E-01	.194E+01	.230E+01
.631E-01	.271E+01	-.658E+01	.875E+00	.240E+01	.271E+01
.100E+00	.301E+01	-.228E+01	.150E+01	.274E+01	.301E+01
.158E+00	.334E+01	.100E+00	.204E+01	.310E+01	.334E+01
.251E+00	.375E+01	.136E+01	.257E+01	.352E+01	.375E+01
.398E+00	.425E+01	.206E+01	.316E+01	.404E+01	.425E+01
.631E+00	.488E+01	.257E+01	.384E+01	.468E+01	.488E+01
.100E+01	.561E+01	.312E+01	.465E+01	.543E+01	.561E+01
.158E+01	.635E+01	.385E+01	.555E+01	.621E+01	.635E+01
.251E+01	.700E+01	.478E+01	.642E+01	.690E+01	.700E+01
.398E+01	.746E+01	.582E+01	.711E+01	.741E+01	.746E+01
.631E+01	.774E+01	.673E+01	.755E+01	.771E+01	.774E+01
.100E+02	.788E+01	.736E+01	.780E+01	.787E+01	.788E+01

TABLE 39. VALUES OF L6 FOR A=5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.773E+14	.670E+14	.752E+14	.770E+14	.773E+14
.158E-07	.285E+14	.242E+14	.276E+14	.283E+14	.285E+14
.251E-07	.104E+14	.862E+13	.100E+14	.103E+14	.104E+14
.398E-07	.373E+13	.303E+13	.358E+13	.371E+13	.373E+13
.631E-07	.133E+13	.105E+13	.127E+13	.132E+13	.133E+13
.100E-06	.465E+12	.358E+12	.442E+12	.461E+12	.465E+12
.158E-06	.160E+12	.120E+12	.152E+12	.159E+12	.160E+12
.251E-06	.544E+11	.393E+11	.511E+11	.539E+11	.544E+11
.398E-06	.181E+11	.126E+11	.169E+11	.179E+11	.181E+11
.631E-06	.590E+10	.394E+10	.545E+10	.583E+10	.590E+10
.100E-05	.188E+10	.120E+10	.172E+10	.185E+10	.188E+10
.158E-05	.584E+09	.356E+09	.530E+09	.575E+09	.584E+09
.251E-05	.177E+09	.102E+09	.159E+09	.174E+09	.177E+09
.398E-05	.520E+08	.286E+08	.463E+08	.511E+08	.520E+08
.631E-05	.149E+08	.776E+07	.131E+08	.146E+08	.149E+08
.100E-04	.412E+07	.204E+07	.358E+07	.403E+07	.412E+07
.158E-04	.111E+07	.519E+06	.952E+06	.108E+07	.111E+07
.251E-04	.288E+06	.128E+06	.245E+06	.281E+06	.288E+06
.398E-04	.728E+05	.309E+05	.613E+05	.709E+05	.728E+05
.631E-04	.179E+05	.728E+04	.149E+05	.174E+05	.179E+05
.100E-03	.427E+04	.168E+04	.353E+04	.415E+04	.427E+04
.158E-03	.996E+03	.385E+03	.817E+03	.966E+03	.996E+03
.251E-03	.228E+03	.899E+02	.187E+03	.221E+03	.228E+03
.398E-03	.523E+02	.229E+02	.429E+02	.507E+02	.523E+02
.631E-03	.127E+02	.758E+01	.107E+02	.124E+02	.127E+02
.100E-02	.395E+01	.396E+01	.345E+01	.385E+01	.395E+01
.158E-02	.200E+01	.304E+01	.183E+01	.196E+01	.200E+01
.251E-02	.157E+01	.278E+01	.146E+01	.154E+01	.157E+01
.398E-02	.147E+01	.268E+01	.137E+01	.144E+01	.147E+01
.631E-02	.144E+01	.261E+01	.135E+01	.142E+01	.144E+01
.100E-01	.144E+01	.255E+01	.135E+01	.141E+01	.144E+01
.158E-01	.144E+01	.247E+01	.135E+01	.142E+01	.144E+01
.251E-01	.145E+01	.237E+01	.135E+01	.142E+01	.145E+01
.398E-01	.146E+01	.224E+01	.136E+01	.143E+01	.146E+01
.631E-01	.147E+01	.209E+01	.137E+01	.145E+01	.147E+01
.100E+00	.149E+01	.193E+01	.139E+01	.147E+01	.149E+01
.158E+00	.152E+01	.177E+01	.141E+01	.150E+01	.152E+01
.251E+00	.157E+01	.164E+01	.145E+01	.154E+01	.157E+01
.398E+00	.162E+01	.154E+01	.150E+01	.160E+01	.162E+01
.631E+00	.170E+01	.150E+01	.158E+01	.167E+01	.170E+01
.100E+01	.177E+01	.152E+01	.167E+01	.176E+01	.177E+01
.158E+01	.185E+01	.159E+01	.177E+01	.184E+01	.185E+01
.251E+01	.191E+01	.169E+01	.186E+01	.190E+01	.191E+01
.398E+01	.195E+01	.180E+01	.192E+01	.195E+01	.195E+01
.631E+01	.198E+01	.189E+01	.196E+01	.198E+01	.198E+01
.100E+02	.199E+01	.195E+01	.198E+01	.199E+01	.199E+01

TABLE 40. VALUES OF L22 FOR A=5

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.197E+06	.185E+06	.195E+06	.197E+06	.197E+06
.158E-07	.120E+06	.112E+06	.118E+06	.119E+06	.120E+06
.251E-07	.722E+05	.667E+05	.711E+05	.720E+05	.722E+05
.398E-07	.433E+05	.396E+05	.426E+05	.432E+05	.433E+05
.631E-07	.258E+05	.233E+05	.253E+05	.257E+05	.258E+05
.100E-06	.153E+05	.136E+05	.149E+05	.152E+05	.153E+05
.158E-06	.894E+04	.787E+04	.874E+04	.891E+04	.894E+04
.251E-06	.520E+04	.451E+04	.506E+04	.518E+04	.520E+04
.398E-06	.299E+04	.255E+04	.290E+04	.298E+04	.299E+04
.631E-06	.170E+04	.143E+04	.165E+04	.170E+04	.170E+04
.100E-05	.961E+03	.795E+03	.927E+03	.956E+03	.961E+03
.158E-05	.536E+03	.437E+03	.516E+03	.533E+03	.536E+03
.251E-05	.296E+03	.238E+03	.284E+03	.294E+03	.296E+03
.398E-05	.162E+03	.128E+03	.155E+03	.161E+03	.162E+03
.631E-05	.879E+02	.691E+02	.839E+02	.873E+02	.879E+02
.100E-04	.475E+02	.372E+02	.453E+02	.471E+02	.475E+02
.158E-04	.256E+02	.203E+02	.244E+02	.255E+02	.256E+02
.251E-04	.140E+02	.113E+02	.133E+02	.139E+02	.140E+02
.398E-04	.777E+01	.665E+01	.746E+01	.772E+01	.777E+01
.631E-04	.452E+01	.422E+01	.438E+01	.450E+01	.452E+01
.100E-03	.283E+01	.297E+01	.278E+01	.282E+01	.283E+01
.158E-03	.195E+01	.232E+01	.196E+01	.195E+01	.195E+01
.251E-03	.150E+01	.199E+01	.153E+01	.151E+01	.150E+01
.398E-03	.127E+01	.182E+01	.132E+01	.128E+01	.127E+01
.631E-03	.115E+01	.174E+01	.120E+01	.116E+01	.115E+01
.100E-02	.109E+01	.169E+01	.115E+01	.110E+01	.109E+01
.158E-02	.106E+01	.166E+01	.112E+01	.107E+01	.106E+01
.251E-02	.105E+01	.165E+01	.110E+01	.105E+01	.105E+01
.398E-02	.104E+01	.163E+01	.110E+01	.105E+01	.104E+01
.631E-02	.104E+01	.161E+01	.109E+01	.104E+01	.104E+01
.100E-01	.103E+01	.159E+01	.109E+01	.104E+01	.103E+01
.158E-01	.103E+01	.156E+01	.108E+01	.104E+01	.103E+01
.251E-01	.103E+01	.152E+01	.108E+01	.104E+01	.103E+01
.398E-01	.103E+01	.147E+01	.107E+01	.103E+01	.103E+01
.631E-01	.102E+01	.141E+01	.107E+01	.103E+01	.102E+01
.100E+00	.102E+01	.134E+01	.106E+01	.103E+01	.102E+01
.158E+00	.102E+01	.127E+01	.105E+01	.102E+01	.102E+01
.251E+00	.101E+01	.120E+01	.103E+01	.102E+01	.101E+01
.398E+00	.101E+01	.113E+01	.102E+01	.101E+01	.101E+01
.631E+00	.100E+01	.108E+01	.101E+01	.101E+01	.100E+01
.100E+01	.100E+01	.104E+01	.101E+01	.100E+01	.100E+01
.158E+01	.100E+01	.102E+01	.100E+01	.100E+01	.100E+01
.251E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 41. VALUES OF L2 FOR A=6

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.306E+14	.279E+14	.300E+14	.305E+14	.306E+14
.158E-07	.115E+14	.104E+14	.113E+14	.114E+14	.115E+14
.251E-07	.429E+13	.385E+13	.420E+13	.427E+13	.429E+13
.398E-07	.159E+13	.142E+13	.156E+13	.159E+13	.159E+13
.631E-07	.588E+12	.519E+12	.574E+12	.586E+12	.588E+12
.100E-06	.216E+12	.189E+12	.210E+12	.215E+12	.216E+12
.158E-06	.787E+11	.682E+11	.766E+11	.784E+11	.787E+11
.251E-06	.285E+11	.245E+11	.277E+11	.284E+11	.285E+11
.398E-06	.103E+11	.872E+10	.996E+10	.102E+11	.103E+11
.631E-06	.367E+10	.308E+10	.355E+10	.366E+10	.367E+10
.100E-05	.130E+10	.108E+10	.126E+10	.130E+10	.130E+10
.158E-05	.459E+09	.376E+09	.442E+09	.456E+09	.459E+09
.251E-05	.160E+09	.129E+09	.154E+09	.159E+09	.160E+09
.398E-05	.555E+08	.442E+08	.532E+08	.551E+08	.555E+08
.631E-05	.190E+08	.150E+08	.182E+08	.189E+08	.190E+08
.100E-04	.648E+07	.503E+07	.617E+07	.643E+07	.648E+07
.158E-04	.218E+07	.167E+07	.208E+07	.217E+07	.218E+07
.251E-04	.730E+06	.553E+06	.692E+06	.724E+06	.730E+06
.398E-04	.242E+06	.181E+06	.229E+06	.240E+06	.242E+06
.631E-04	.797E+05	.592E+05	.753E+05	.790E+05	.797E+05
.100E-03	.261E+05	.192E+05	.246E+05	.259E+05	.261E+05
.158E-03	.849E+04	.621E+04	.799E+04	.841E+04	.849E+04
.251E-03	.275E+04	.201E+04	.258E+04	.272E+04	.275E+04
.398E-03	.887E+03	.651E+03	.834E+03	.879E+03	.887E+03
.631E-03	.286E+03	.216E+03	.269E+03	.284E+03	.286E+03
.100E-02	.931E+02	.764E+02	.878E+02	.922E+02	.931E+02
.158E-02	.311E+02	.315E+02	.296E+02	.308E+02	.311E+02
.251E-02	.112E+02	.168E+02	.110E+02	.112E+02	.112E+02
.398E-02	.489E+01	.116E+02	.510E+01	.490E+01	.489E+01
.631E-02	.287E+01	.946E+01	.318E+01	.289E+01	.287E+01
.100E-01	.222E+01	.822E+01	.255E+01	.225E+01	.222E+01
.158E-01	.201E+01	.726E+01	.232E+01	.204E+01	.201E+01
.251E-01	.194E+01	.637E+01	.221E+01	.196E+01	.194E+01
.398E-01	.191E+01	.550E+01	.214E+01	.193E+01	.191E+01
.631E-01	.189E+01	.468E+01	.207E+01	.191E+01	.189E+01
.100E+00	.188E+01	.392E+01	.201E+01	.189E+01	.188E+01
.158E+00	.187E+01	.326E+01	.196E+01	.188E+01	.187E+01
.251E+00	.187E+01	.273E+01	.191E+01	.187E+01	.187E+01
.398E+00	.187E+01	.234E+01	.188E+01	.187E+01	.187E+01
.631E+00	.189E+01	.208E+01	.187E+01	.188E+01	.189E+01
.100E+01	.191E+01	.193E+01	.188E+01	.191E+01	.191E+01
.158E+01	.194E+01	.188E+01	.191E+01	.194E+01	.194E+01
.251E+01	.196E+01	.189E+01	.194E+01	.196E+01	.196E+01
.398E+01	.198E+01	.192E+01	.197E+01	.198E+01	.198E+01
.631E+01	.199E+01	.196E+01	.198E+01	.199E+01	.199E+01
.100E+02	.200E+01	.198E+01	.199E+01	.200E+01	.200E+01

TABLE 42. VALUES OF L4 FOR A=6

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.360E+22	.262E+22	.340E+22	.357E+22	.360E+22
.158E-07	.737E+21	.516E+21	.691E+21	.730E+21	.737E+21
.251E-07	.147E+21	.980E+20	.137E+21	.146E+21	.147E+21
.398E-07	.285E+20	.179E+20	.262E+20	.281E+20	.285E+20
.631E-07	.531E+19	.308E+19	.482E+19	.523E+19	.531E+19
.100E-06	.944E+18	.492E+18	.843E+18	.928E+18	.944E+18
.158E-06	.157E+18	.690E+17	.137E+18	.154E+18	.157E+18
.251E-06	.238E+17	.732E+16	.199E+17	.232E+17	.238E+17
.398E-06	.300E+16	.120E+15	.230E+16	.289E+16	.300E+16
.631E-06	.226E+15	-.238E+15	.106E+15	.207E+15	.226E+15
.100E-05	-.302E+14	-.951E+14	-.484E+14	-.332E+14	-.302E+14
.158E-05	-.202E+14	-.270E+14	-.226E+14	-.206E+14	-.202E+14
.251E-05	-.654E+13	-.661E+13	-.671E+13	-.657E+13	-.654E+13
.398E-05	-.171E+13	-.148E+13	-.168E+13	-.170E+13	-.171E+13
.631E-05	-.397E+12	-.309E+12	-.382E+12	-.395E+12	-.397E+12
.100E-04	-.858E+11	-.617E+11	-.811E+11	-.851E+11	-.858E+11
.158E-04	-.175E+11	-.118E+11	-.163E+11	-.173E+11	-.175E+11
.251E-04	-.342E+10	-.219E+10	-.315E+10	-.338E+10	-.342E+10
.398E-04	-.643E+09	-.396E+09	-.587E+09	-.634E+09	-.643E+09
.631E-04	-.117E+09	-.702E+08	-.107E+09	-.116E+09	-.117E+09
.100E-03	-.209E+08	-.123E+08	-.189E+08	-.206E+08	-.209E+08
.158E-03	-.366E+07	-.215E+07	-.329E+07	-.360E+07	-.366E+07
.251E-03	-.632E+06	-.380E+06	-.569E+06	-.622E+06	-.632E+06
.398E-03	-.108E+06	-.695E+05	-.981E+05	-.107E+06	-.108E+06
.631E-03	-.186E+05	-.135E+05	-.171E+05	-.184E+05	-.186E+05
.100E-02	-.326E+04	-.290E+04	-.308E+04	-.323E+04	-.326E+04
.158E-02	-.592E+03	-.719E+03	-.588E+03	-.590E+03	-.592E+03
.251E-02	-.113E+03	-.220E+03	-.122E+03	-.114E+03	-.113E+03
.398E-02	-.221E+02	-.896E+02	-.278E+02	-.228E+02	-.221E+02
.631E-02	-.303E+01	-.478E+02	-.658E+01	-.354E+01	-.303E+01
.100E-01	.141E+01	-.299E+02	-.119E+01	.102E+01	.141E+01
.158E-01	.259E+01	-.197E+02	.428E+00	.225E+01	.259E+01
.251E-01	.297E+01	-.126E+02	.108E+01	.267E+01	.297E+01
.398E-01	.316E+01	-.743E+01	.148E+01	.288E+01	.316E+01
.631E-01	.333E+01	-.373E+01	.182E+01	.306E+01	.333E+01
.100E+00	.353E+01	-.121E+01	.216E+01	.328E+01	.353E+01
.158E+00	.380E+01	.408E+00	.255E+01	.356E+01	.380E+01
.251E+00	.416E+01	.141E+01	.299E+01	.393E+01	.416E+01
.398E+00	.463E+01	.207E+01	.353E+01	.442E+01	.463E+01
.631E+00	.522E+01	.262E+01	.419E+01	.503E+01	.522E+01
.100E+01	.590E+01	.325E+01	.498E+01	.573E+01	.590E+01
.158E+01	.657E+01	.405E+01	.583E+01	.645E+01	.657E+01
.251E+01	.715E+01	.503E+01	.663E+01	.706E+01	.715E+01
.398E+01	.755E+01	.605E+01	.724E+01	.750E+01	.755E+01
.631E+01	.778E+01	.690E+01	.762E+01	.776E+01	.778E+01
.100E+02	.790E+01	.746E+01	.783E+01	.789E+01	.790E+01

TABLE 43. VALUES OF L6 FOR A=6

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.187E+14	.152E+14	.180E+14	.186E+14	.187E+14
.158E-07	.652E+13	.518E+13	.625E+13	.648E+13	.652E+13
.251E-07	.224E+13	.173E+13	.214E+13	.222E+13	.224E+13
.398E-07	.755E+12	.568E+12	.716E+12	.749E+12	.755E+12
.631E-07	.250E+12	.181E+12	.235E+12	.247E+12	.250E+12
.100E-06	.808E+11	.565E+11	.756E+11	.800E+11	.808E+11
.158E-06	.255E+11	.172E+11	.237E+11	.253E+11	.255E+11
.251E-06	.787E+10	.509E+10	.726E+10	.778E+10	.787E+10
.398E-06	.236E+10	.146E+10	.216E+10	.233E+10	.236E+10
.631E-06	.689E+09	.408E+09	.625E+09	.679E+09	.689E+09
.100E-05	.195E+09	.110E+09	.175E+09	.192E+09	.195E+09
.158E-05	.535E+08	.288E+08	.477E+08	.526E+08	.535E+08
.251E-05	.142E+08	.732E+07	.126E+08	.140E+08	.142E+08
.398E-05	.367E+07	.181E+07	.321E+07	.360E+07	.367E+07
.631E-05	.919E+06	.433E+06	.797E+06	.900E+06	.919E+06
.100E-04	.223E+06	.101E+06	.192E+06	.218E+06	.223E+06
.158E-04	.528E+05	.231E+05	.451E+05	.516E+05	.528E+05
.251E-04	.122E+05	.517E+04	.103E+05	.119E+05	.122E+05
.398E-04	.275E+04	.114E+04	.232E+04	.268E+04	.275E+04
.631E-04	.610E+03	.250E+03	.512E+03	.594E+03	.610E+03
.100E-03	.134E+03	.557E+02	.112E+03	.131E+03	.134E+03
.158E-03	.300E+02	.138E+02	.252E+02	.292E+02	.300E+02
.251E-03	.758E+01	.471E+01	.648E+01	.739E+01	.758E+01
.398E-03	.279E+01	.271E+01	.247E+01	.273E+01	.279E+01
.631E-03	.177E+01	.225E+01	.161E+01	.173E+01	.177E+01
.100E-02	.155E+01	.213E+01	.142E+01	.152E+01	.155E+01
.158E-02	.150E+01	.210E+01	.138E+01	.147E+01	.150E+01
.251E-02	.149E+01	.208E+01	.137E+01	.146E+01	.149E+01
.398E-02	.149E+01	.207E+01	.137E+01	.146E+01	.149E+01
.631E-02	.149E+01	.205E+01	.137E+01	.146E+01	.149E+01
.100E-01	.149E+01	.203E+01	.137E+01	.146E+01	.149E+01
.158E-01	.149E+01	.199E+01	.137E+01	.147E+01	.149E+01
.251E-01	.150E+01	.194E+01	.138E+01	.147E+01	.150E+01
.398E-01	.151E+01	.188E+01	.139E+01	.148E+01	.151E+01
.631E-01	.152E+01	.180E+01	.140E+01	.150E+01	.152E+01
.100E+00	.154E+01	.170E+01	.142E+01	.152E+01	.154E+01
.158E+00	.157E+01	.161E+01	.145E+01	.155E+01	.157E+01
.251E+00	.161E+01	.154E+01	.149E+01	.159E+01	.161E+01
.398E+00	.167E+01	.149E+01	.154E+01	.164E+01	.167E+01
.631E+00	.173E+01	.148E+01	.162E+01	.171E+01	.173E+01
.100E+01	.180E+01	.152E+01	.171E+01	.179E+01	.180E+01
.158E+01	.187E+01	.161E+01	.180E+01	.186E+01	.187E+01
.251E+01	.193E+01	.172E+01	.188E+01	.192E+01	.193E+01
.398E+01	.196E+01	.183E+01	.194E+01	.196E+01	.196E+01
.631E+01	.198E+01	.191E+01	.197E+01	.198E+01	.198E+01
.100E+02	.199E+01	.196E+01	.199E+01	.199E+01	.199E+01

TABLE 44. VALUES OF L22 FOR A=6

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.588E+05	.537E+05	.578E+05	.586E+05	.588E+05
.158E-07	.347E+05	.313E+05	.340E+05	.346E+05	.347E+05
.251E-07	.203E+05	.181E+05	.199E+05	.202E+05	.203E+05
.398E-07	.117E+05	.103E+05	.115E+05	.117E+05	.117E+05
.631E-07	.674E+04	.585E+04	.657E+04	.671E+04	.674E+04
.100E-06	.382E+04	.328E+04	.372E+04	.381E+04	.382E+04
.158E-06	.215E+04	.182E+04	.209E+04	.214E+04	.215E+04
.251E-06	.119E+04	.995E+03	.116E+04	.119E+04	.119E+04
.398E-06	.657E+03	.540E+03	.634E+03	.654E+03	.657E+03
.631E-06	.358E+03	.291E+03	.345E+03	.356E+03	.358E+03
.100E-05	.193E+03	.155E+03	.186E+03	.192E+03	.193E+03
.158E-05	.103E+03	.824E+02	.992E+02	.103E+03	.103E+03
.251E-05	.551E+02	.438E+02	.528E+02	.548E+02	.551E+02
.398E-05	.294E+02	.235E+02	.281E+02	.292E+02	.294E+02
.631E-05	.158E+02	.128E+02	.151E+02	.157E+02	.158E+02
.100E-04	.865E+01	.731E+01	.832E+01	.860E+01	.865E+01
.158E-04	.494E+01	.446E+01	.479E+01	.492E+01	.494E+01
.251E-04	.303E+01	.300E+01	.297E+01	.302E+01	.303E+01
.398E-04	.205E+01	.226E+01	.204E+01	.204E+01	.205E+01
.631E-04	.154E+01	.188E+01	.156E+01	.154E+01	.154E+01
.100E-03	.129E+01	.168E+01	.132E+01	.129E+01	.129E+01
.158E-03	.116E+01	.159E+01	.119E+01	.116E+01	.116E+01
.251E-03	.109E+01	.154E+01	.113E+01	.110E+01	.109E+01
.398E-03	.106E+01	.151E+01	.110E+01	.106E+01	.106E+01
.631E-03	.104E+01	.150E+01	.108E+01	.105E+01	.104E+01
.100E-02	.103E+01	.149E+01	.107E+01	.104E+01	.103E+01
.158E-02	.103E+01	.148E+01	.107E+01	.103E+01	.103E+01
.251E-02	.103E+01	.148E+01	.107E+01	.103E+01	.103E+01
.398E-02	.102E+01	.147E+01	.107E+01	.103E+01	.102E+01
.631E-02	.102E+01	.146E+01	.106E+01	.103E+01	.102E+01
.100E-01	.102E+01	.145E+01	.106E+01	.103E+01	.102E+01
.158E-01	.102E+01	.143E+01	.106E+01	.103E+01	.102E+01
.251E-01	.102E+01	.140E+01	.106E+01	.103E+01	.102E+01
.398E-01	.102E+01	.137E+01	.105E+01	.102E+01	.102E+01
.631E-01	.102E+01	.133E+01	.105E+01	.102E+01	.102E+01
.100E+00	.102E+01	.127E+01	.104E+01	.102E+01	.102E+01
.158E+00	.101E+01	.122E+01	.103E+01	.102E+01	.101E+01
.251E+00	.101E+01	.116E+01	.103E+01	.101E+01	.101E+01
.398E+00	.101E+01	.111E+01	.102E+01	.101E+01	.101E+01
.631E+00	.100E+01	.106E+01	.101E+01	.100E+01	.100E+01
.100E+01	.100E+01	.103E+01	.100E+01	.100E+01	.100E+01
.158E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.251E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 45. VALUES OF L2 FOR A=7

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.840E+13	.753E+13	.824E+13	.838E+13	.840E+13
.158E-07	.308E+13	.274E+13	.302E+13	.307E+13	.308E+13
.251E-07	.112E+13	.988E+12	.110E+13	.112E+13	.112E+13
.398E-07	.406E+12	.354E+12	.396E+12	.404E+12	.406E+12
.631E-07	.146E+12	.126E+12	.142E+12	.145E+12	.146E+12
.100E-06	.520E+11	.445E+11	.506E+11	.518E+11	.520E+11
.158E-06	.184E+11	.156E+11	.179E+11	.183E+11	.184E+11
.251E-06	.647E+10	.542E+10	.627E+10	.644E+10	.647E+10
.398E-06	.225E+10	.187E+10	.218E+10	.224E+10	.225E+10
.631E-06	.778E+09	.637E+09	.750E+09	.774E+09	.778E+09
.100E-05	.266E+09	.215E+09	.256E+09	.265E+09	.266E+09
.158E-05	.903E+08	.722E+08	.867E+08	.897E+08	.903E+08
.251E-05	.304E+08	.240E+08	.291E+08	.302E+08	.304E+08
.398E-05	.101E+08	.793E+07	.968E+07	.101E+08	.101E+08
.631E-05	.335E+07	.260E+07	.320E+07	.333E+07	.335E+07
.100E-04	.110E+07	.848E+06	.105E+07	.109E+07	.110E+07
.158E-04	.359E+06	.275E+06	.342E+06	.357E+06	.359E+06
.251E-04	.117E+06	.887E+05	.111E+06	.116E+06	.117E+06
.398E-04	.377E+05	.285E+05	.358E+05	.374E+05	.377E+05
.631E-04	.121E+05	.915E+04	.115E+05	.121E+05	.121E+05
.100E-03	.390E+04	.293E+04	.370E+04	.387E+04	.390E+04
.158E-03	.125E+04	.940E+03	.118E+04	.124E+04	.125E+04
.251E-03	.400E+03	.304E+03	.379E+03	.397E+03	.400E+03
.398E-03	.129E+03	.102E+03	.122E+03	.128E+03	.129E+03
.631E-03	.423E+02	.371E+02	.404E+02	.420E+02	.423E+02
.100E-02	.147E+02	.165E+02	.143E+02	.147E+02	.147E+02
.158E-02	.597E+01	.986E+01	.597E+01	.596E+01	.597E+01
.251E-02	.319E+01	.761E+01	.333E+01	.319E+01	.319E+01
.398E-02	.230E+01	.671E+01	.248E+01	.231E+01	.230E+01
.631E-02	.202E+01	.621E+01	.221E+01	.203E+01	.202E+01
.100E-01	.193E+01	.580E+01	.211E+01	.194E+01	.193E+01
.158E-01	.190E+01	.537E+01	.207E+01	.191E+01	.190E+01
.251E-01	.189E+01	.491E+01	.204E+01	.190E+01	.189E+01
.398E-01	.188E+01	.441E+01	.201E+01	.189E+01	.188E+01
.631E-01	.187E+01	.389E+01	.198E+01	.188E+01	.187E+01
.100E+00	.187E+01	.337E+01	.195E+01	.188E+01	.187E+01
.158E+00	.187E+01	.290E+01	.191E+01	.187E+01	.187E+01
.251E+00	.187E+01	.251E+01	.189E+01	.187E+01	.187E+01
.398E+00	.188E+01	.221E+01	.187E+01	.188E+01	.188E+01
.631E+00	.190E+01	.201E+01	.187E+01	.189E+01	.190E+01
.100E+01	.192E+01	.191E+01	.189E+01	.192E+01	.192E+01
.158E+01	.195E+01	.188E+01	.192E+01	.194E+01	.195E+01
.251E+01	.197E+01	.189E+01	.195E+01	.197E+01	.197E+01
.398E+01	.198E+01	.193E+01	.197E+01	.198E+01	.198E+01
.631E+01	.199E+01	.196E+01	.199E+01	.199E+01	.199E+01
.100E+02	.200E+01	.198E+01	.199E+01	.200E+01	.200E+01

TABLE 46. VALUES OF L4 FOR A=7

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.444E+21	.272E+21	.409E+21	.439E+21	.444E+21
.158E-07	.776E+20	.430E+20	.704E+20	.765E+20	.776E+20
.251E-07	.126E+20	.591E+19	.112E+20	.124E+20	.126E+20
.398E-07	.183E+19	.593E+18	.156E+19	.179E+19	.183E+19
.631E-07	.211E+18	-.242E+16	.162E+18	.203E+18	.211E+18
.100E-06	.953E+16	-.239E+17	.152E+16	.827E+16	.953E+16
.158E-06	-.452E+16	-.900E+16	-.570E+16	-.471E+16	-.452E+16
.251E-06	-.209E+16	-.250E+16	-.223E+16	-.211E+16	-.209E+16
.398E-06	-.621E+15	-.605E+15	-.628E+15	-.622E+15	-.621E+15
.631E-06	-.155E+15	-.134E+15	-.153E+15	-.155E+15	-.155E+15
.100E-05	-.353E+14	-.279E+14	-.341E+14	-.351E+14	-.353E+14
.158E-05	-.748E+13	-.554E+13	-.712E+13	-.743E+13	-.748E+13
.251E-05	-.150E+13	-.106E+13	-.142E+13	-.149E+13	-.150E+13
.398E-05	-.290E+12	-.195E+12	-.271E+12	-.287E+12	-.290E+12
.631E-05	-.540E+11	-.350E+11	-.500E+11	-.534E+11	-.540E+11
.100E-04	-.978E+10	-.614E+10	-.900E+10	-.966E+10	-.978E+10
.158E-04	-.173E+10	-.106E+10	-.158E+10	-.170E+10	-.173E+10
.251E-04	-.299E+09	-.180E+09	-.273E+09	-.295E+09	-.299E+09
.398E-04	-.510E+08	-.304E+08	-.464E+08	-.503E+08	-.510E+08
.631E-04	-.859E+07	-.511E+07	-.780E+07	-.847E+07	-.859E+07
.100E-03	-.144E+07	-.865E+06	-.130E+07	-.141E+07	-.144E+07
.158E-03	-.239E+06	-.149E+06	-.217E+06	-.235E+06	-.239E+06
.251E-03	-.398E+05	-.267E+05	-.365E+05	-.392E+05	-.398E+05
.398E-03	-.671E+04	-.515E+04	-.626E+04	-.663E+04	-.671E+04
.631E-03	-.116E+04	-.110E+04	-.112E+04	-.115E+04	-.116E+04
.100E-02	-.210E+03	-.277E+03	-.213E+03	-.210E+03	-.210E+03
.158E-02	-.391E+02	-.885E+02	-.437E+02	-.397E+02	-.391E+02
.251E-02	-.602E+01	-.393E+02	-.903E+01	-.647E+01	-.602E+01
.398E-02	.108E+01	-.238E+02	-.111E+01	.740E+00	.108E+01
.631E-02	.280E+01	-.172E+02	.944E+00	.250E+01	.280E+01
.100E-01	.327E+01	-.130E+02	.157E+01	.299E+01	.327E+01
.158E-01	.343E+01	-.966E+01	.182E+01	.316E+01	.343E+01
.251E-01	.352E+01	-.674E+01	.200E+01	.326E+01	.352E+01
.398E-01	.361E+01	-.419E+01	.217E+01	.336E+01	.361E+01
.631E-01	.373E+01	-.209E+01	.237E+01	.349E+01	.373E+01
.100E+00	.390E+01	-.474E+00	.262E+01	.367E+01	.390E+01
.158E+00	.415E+01	.695E+00	.294E+01	.392E+01	.415E+01
.251E+00	.448E+01	.152E+01	.334E+01	.427E+01	.448E+01
.398E+00	.493E+01	.214E+01	.385E+01	.473E+01	.493E+01
.631E+00	.549E+01	.273E+01	.449E+01	.530E+01	.549E+01
.100E+01	.612E+01	.341E+01	.525E+01	.597E+01	.612E+01
.158E+01	.674E+01	.426E+01	.606E+01	.662E+01	.674E+01
.251E+01	.725E+01	.526E+01	.679E+01	.718E+01	.725E+01
.398E+01	.761E+01	.625E+01	.734E+01	.757E+01	.761E+01
.631E+01	.781E+01	.704E+01	.768E+01	.779E+01	.781E+01
.100E+02	.792E+01	.754E+01	.785E+01	.791E+01	.792E+01

TABLE 47. VALUES OF L6 FOR A=7

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.344E+13	.259E+13	.327E+13	.341E+13	.344E+13
.158E-07	.111E+13	.805E+12	.105E+13	.110E+13	.111E+13
.251E-07	.347E+12	.244E+12	.326E+12	.344E+12	.347E+12
.398E-07	.106E+12	.720E+11	.991E+11	.105E+12	.106E+12
.631E-07	.316E+11	.206E+11	.293E+11	.312E+11	.316E+11
.100E-06	.913E+10	.573E+10	.841E+10	.902E+10	.913E+10
.158E-06	.256E+10	.154E+10	.234E+10	.253E+10	.256E+10
.251E-06	.696E+09	.403E+09	.632E+09	.686E+09	.696E+09
.398E-06	.183E+09	.102E+09	.165E+09	.181E+09	.183E+09
.631E-06	.469E+08	.250E+08	.419E+08	.461E+08	.469E+08
.100E-05	.116E+08	.598E+07	.103E+08	.114E+08	.116E+08
.158E-05	.280E+07	.139E+07	.247E+07	.275E+07	.280E+07
.251E-05	.657E+06	.317E+06	.576E+06	.644E+06	.657E+06
.398E-05	.150E+06	.705E+05	.131E+06	.147E+06	.150E+06
.631E-05	.337E+05	.154E+05	.292E+05	.330E+05	.337E+05
.100E-04	.741E+04	.332E+04	.640E+04	.725E+04	.741E+04
.158E-04	.160E+04	.709E+03	.138E+04	.157E+04	.160E+04
.251E-04	.343E+03	.151E+03	.295E+03	.335E+03	.343E+03
.398E-04	.736E+02	.331E+02	.631E+02	.719E+02	.736E+02
.631E-04	.166E+02	.838E+01	.143E+02	.162E+02	.166E+02
.100E-03	.467E+01	.320E+01	.409E+01	.457E+01	.467E+01
.158E-03	.218E+01	.210E+01	.196E+01	.214E+01	.218E+01
.251E-03	.167E+01	.186E+01	.152E+01	.164E+01	.167E+01
.398E-03	.156E+01	.181E+01	.142E+01	.153E+01	.156E+01
.631E-03	.154E+01	.179E+01	.140E+01	.151E+01	.154E+01
.100E-02	.153E+01	.179E+01	.140E+01	.150E+01	.153E+01
.158E-02	.153E+01	.179E+01	.140E+01	.150E+01	.153E+01
.251E-02	.153E+01	.178E+01	.140E+01	.150E+01	.153E+01
.398E-02	.153E+01	.178E+01	.140E+01	.150E+01	.153E+01
.631E-02	.153E+01	.177E+01	.140E+01	.151E+01	.153E+01
.100E-01	.153E+01	.176E+01	.140E+01	.151E+01	.153E+01
.158E-01	.154E+01	.174E+01	.141E+01	.151E+01	.154E+01
.251E-01	.154E+01	.171E+01	.141E+01	.152E+01	.154E+01
.398E-01	.155E+01	.168E+01	.142E+01	.153E+01	.155E+01
.631E-01	.156E+01	.163E+01	.143E+01	.154E+01	.156E+01
.100E+00	.158E+01	.157E+01	.145E+01	.156E+01	.158E+01
.158E+00	.161E+01	.152E+01	.148E+01	.159E+01	.161E+01
.251E+00	.165E+01	.148E+01	.152E+01	.162E+01	.165E+01
.398E+00	.170E+01	.146E+01	.158E+01	.168E+01	.170E+01
.631E+00	.176E+01	.148E+01	.165E+01	.174E+01	.176E+01
.100E+01	.183E+01	.154E+01	.174E+01	.181E+01	.183E+01
.158E+01	.189E+01	.163E+01	.182E+01	.188E+01	.189E+01
.251E+01	.194E+01	.174E+01	.189E+01	.193E+01	.194E+01
.398E+01	.197E+01	.185E+01	.194E+01	.196E+01	.197E+01
.631E+01	.198E+01	.192E+01	.197E+01	.198E+01	.198E+01
.100E+02	.199E+01	.196E+01	.199E+01	.199E+01	.199E+01

TABLE 48. VALUES OF L22 FOR A=7

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.152E+05	.134E+05	.148E+05	.151E+05	.152E+05
.158E-07	.858E+04	.746E+04	.838E+04	.855E+04	.858E+04
.251E-07	.480E+04	.413E+04	.468E+04	.478E+04	.480E+04
.398E-07	.266E+04	.226E+04	.259E+04	.265E+04	.266E+04
.631E-07	.146E+04	.122E+04	.141E+04	.145E+04	.146E+04
.100E-06	.791E+03	.656E+03	.766E+03	.787E+03	.791E+03
.158E-06	.425E+03	.349E+03	.410E+03	.423E+03	.425E+03
.251E-06	.226E+03	.184E+03	.218E+03	.225E+03	.226E+03
.398E-06	.120E+03	.968E+02	.115E+03	.119E+03	.120E+03
.631E-06	.631E+02	.509E+02	.607E+02	.627E+02	.631E+02
.100E-05	.332E+02	.269E+02	.320E+02	.331E+02	.332E+02
.158E-05	.176E+02	.145E+02	.170E+02	.175E+02	.176E+02
.251E-05	.956E+01	.807E+01	.923E+01	.951E+01	.956E+01
.398E-05	.538E+01	.479E+01	.523E+01	.536E+01	.538E+01
.631E-05	.324E+01	.311E+01	.318E+01	.323E+01	.324E+01
.100E-04	.215E+01	.226E+01	.213E+01	.214E+01	.215E+01
.158E-04	.159E+01	.182E+01	.160E+01	.159E+01	.159E+01
.251E-04	.131E+01	.160E+01	.133E+01	.131E+01	.131E+01
.398E-04	.116E+01	.149E+01	.119E+01	.117E+01	.116E+01
.631E-04	.109E+01	.144E+01	.112E+01	.110E+01	.109E+01
.100E-03	.106E+01	.141E+01	.109E+01	.106E+01	.106E+01
.158E-03	.104E+01	.139E+01	.107E+01	.104E+01	.104E+01
.251E-03	.103E+01	.139E+01	.106E+01	.103E+01	.103E+01
.398E-03	.102E+01	.138E+01	.105E+01	.103E+01	.102E+01
.631E-03	.102E+01	.138E+01	.105E+01	.102E+01	.102E+01
.100E-02	.102E+01	.138E+01	.105E+01	.102E+01	.102E+01
.158E-02	.102E+01	.138E+01	.105E+01	.102E+01	.102E+01
.251E-02	.102E+01	.137E+01	.105E+01	.102E+01	.102E+01
.398E-02	.102E+01	.137E+01	.105E+01	.102E+01	.102E+01
.631E-02	.102E+01	.136E+01	.105E+01	.102E+01	.102E+01
.100E-01	.102E+01	.135E+01	.105E+01	.102E+01	.102E+01
.158E-01	.102E+01	.134E+01	.105E+01	.102E+01	.102E+01
.251E-01	.102E+01	.132E+01	.104E+01	.102E+01	.102E+01
.398E-01	.102E+01	.130E+01	.104E+01	.102E+01	.102E+01
.631E-01	.101E+01	.126E+01	.104E+01	.102E+01	.101E+01
.100E+00	.101E+01	.122E+01	.103E+01	.102E+01	.101E+01
.158E+00	.101E+01	.118E+01	.103E+01	.101E+01	.101E+01
.251E+00	.101E+01	.113E+01	.102E+01	.101E+01	.101E+01
.398E+00	.101E+01	.109E+01	.101E+01	.101E+01	.101E+01
.631E+00	.100E+01	.105E+01	.101E+01	.100E+01	.100E+01
.100E+01	.100E+01	.103E+01	.100E+01	.100E+01	.100E+01
.158E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.251E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 49. VALUES OF L2 FOR A=8

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.207E+13	.181E+13	.202E+13	.206E+13	.207E+13
.158E-07	.735E+12	.640E+12	.718E+12	.733E+12	.735E+12
.251E-07	.260E+12	.224E+12	.253E+12	.259E+12	.260E+12
.398E-07	.910E+11	.777E+11	.886E+11	.906E+11	.910E+11
.631E-07	.316E+11	.267E+11	.307E+11	.315E+11	.316E+11
.100E-06	.109E+11	.910E+10	.106E+11	.108E+11	.109E+11
.158E-06	.371E+10	.308E+10	.360E+10	.370E+10	.371E+10
.251E-06	.126E+10	.103E+10	.121E+10	.125E+10	.126E+10
.398E-06	.421E+09	.342E+09	.406E+09	.419E+09	.421E+09
.631E-06	.140E+09	.113E+09	.135E+09	.139E+09	.140E+09
.100E-05	.463E+08	.370E+08	.445E+08	.460E+08	.463E+08
.158E-05	.152E+08	.120E+08	.146E+08	.151E+08	.152E+08
.251E-05	.495E+07	.390E+07	.475E+07	.492E+07	.495E+07
.398E-05	.160E+07	.126E+07	.154E+07	.159E+07	.160E+07
.631E-05	.518E+06	.405E+06	.496E+06	.515E+06	.518E+06
.100E-04	.167E+06	.130E+06	.159E+06	.165E+06	.167E+06
.158E-04	.534E+05	.414E+05	.511E+05	.530E+05	.534E+05
.251E-04	.171E+05	.132E+05	.163E+05	.170E+05	.171E+05
.398E-04	.545E+04	.421E+04	.521E+04	.541E+04	.545E+04
.631E-04	.174E+04	.134E+04	.166E+04	.173E+04	.174E+04
.100E-03	.554E+03	.430E+03	.529E+03	.550E+03	.554E+03
.158E-03	.177E+03	.140E+03	.169E+03	.176E+03	.177E+03
.251E-03	.575E+02	.480E+02	.551E+02	.572E+02	.575E+02
.398E-03	.195E+02	.187E+02	.188E+02	.194E+02	.195E+02
.631E-03	.747E+01	.942E+01	.734E+01	.744E+01	.747E+01
.100E-02	.365E+01	.645E+01	.369E+01	.365E+01	.365E+01
.158E-02	.244E+01	.546E+01	.253E+01	.244E+01	.244E+01
.251E-02	.205E+01	.509E+01	.216E+01	.206E+01	.205E+01
.398E-02	.193E+01	.489E+01	.204E+01	.194E+01	.193E+01
.631E-02	.189E+01	.473E+01	.200E+01	.190E+01	.189E+01
.100E-01	.188E+01	.454E+01	.199E+01	.189E+01	.188E+01
.158E-01	.187E+01	.432E+01	.197E+01	.188E+01	.187E+01
.251E-01	.187E+01	.404E+01	.196E+01	.188E+01	.187E+01
.398E-01	.187E+01	.372E+01	.195E+01	.188E+01	.187E+01
.631E-01	.187E+01	.337E+01	.193E+01	.187E+01	.187E+01
.100E+00	.187E+01	.300E+01	.191E+01	.187E+01	.187E+01
.158E+00	.187E+01	.266E+01	.189E+01	.187E+01	.187E+01
.251E+00	.188E+01	.236E+01	.187E+01	.187E+01	.188E+01
.398E+00	.189E+01	.212E+01	.187E+01	.188E+01	.189E+01
.631E+00	.191E+01	.197E+01	.188E+01	.190E+01	.191E+01
.100E+01	.193E+01	.189E+01	.190E+01	.192E+01	.193E+01
.158E+01	.195E+01	.188E+01	.193E+01	.195E+01	.195E+01
.251E+01	.197E+01	.190E+01	.195E+01	.197E+01	.197E+01
.398E+01	.199E+01	.194E+01	.198E+01	.198E+01	.199E+01
.631E+01	.199E+01	.197E+01	.199E+01	.199E+01	.199E+01
.100E+02	.200E+01	.198E+01	.199E+01	.200E+01	.200E+01

TABLE **50**. VALUES OF L4 FOR A=8

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.139E+20	-.182E+19	.105E+20	.133E+20	.139E+20
.158E-07	-.406E+17	-.243E+19	-.583E+18	-.125E+18	-.406E+17
.251E-07	-.553E+18	-.856E+18	-.628E+18	-.565E+18	-.553E+18
.398E-07	-.209E+18	-.232E+18	-.217E+18	-.210E+18	-.209E+18
.631E-07	-.581E+17	-.551E+17	-.581E+17	-.581E+17	-.581E+17
.100E-06	-.140E+17	-.121E+17	-.138E+17	-.140E+17	-.140E+17
.158E-06	-.312E+16	-.250E+16	-.301E+16	-.310E+16	-.312E+16
.251E-06	-.649E+15	-.492E+15	-.620E+15	-.645E+15	-.649E+15
.398E-06	-.129E+15	-.933E+14	-.122E+15	-.128E+15	-.129E+15
.631E-06	-.245E+14	-.171E+14	-.231E+14	-.243E+14	-.245E+14
.100E-05	-.453E+13	-.306E+13	-.423E+13	-.448E+13	-.453E+13
.158E-05	-.813E+12	-.536E+12	-.756E+12	-.804E+12	-.813E+12
.251E-05	-.143E+12	-.921E+11	-.132E+12	-.141E+12	-.143E+12
.398E-05	-.246E+11	-.156E+11	-.227E+11	-.243E+11	-.246E+11
.631E-05	-.416E+10	-.261E+10	-.384E+10	-.411E+10	-.416E+10
.100E-04	-.697E+09	-.432E+09	-.641E+09	-.688E+09	-.697E+09
.158E-04	-.116E+09	-.711E+08	-.106E+09	-.114E+09	-.116E+09
.251E-04	-.190E+08	-.117E+08	-.174E+08	-.187E+08	-.190E+08
.398E-04	-.311E+07	-.192E+07	-.285E+07	-.307E+07	-.311E+07
.631E-04	-.507E+06	-.319E+06	-.466E+06	-.501E+06	-.507E+06
.100E-03	-.829E+05	-.544E+05	-.764E+05	-.819E+05	-.829E+05
.158E-03	-.137E+05	-.971E+04	-.127E+05	-.135E+05	-.137E+05
.251E-03	-.230E+04	-.187E+04	-.217E+04	-.227E+04	-.230E+04
.398E-03	-.398E+03	-.405E+03	-.389E+03	-.396E+03	-.398E+03
.631E-03	-.713E+02	-.105E+03	-.739E+02	-.716E+02	-.713E+02
.100E-02	-.117E+02	-.354E+02	-.142E+02	-.121E+02	-.117E+02
.158E-02	.204E+00	-.174E+02	-.173E+01	-.109E+00	.204E+00
.251E-02	.285E+01	-.118E+02	.121E+01	.257E+01	.285E+01
.398E-02	.351E+01	-.951E+01	.199E+01	.325E+01	.351E+01
.631E-02	.370E+01	-.801E+01	.224E+01	.345E+01	.370E+01
.100E-01	.378E+01	-.665E+01	.234E+01	.352E+01	.378E+01
.158E-01	.382E+01	-.525E+01	.241E+01	.357E+01	.382E+01
.251E-01	.387E+01	-.380E+01	.250E+01	.363E+01	.387E+01
.398E-01	.394E+01	-.237E+01	.261E+01	.370E+01	.394E+01
.631E-01	.405E+01	-.106E+01	.276E+01	.381E+01	.405E+01
.100E+00	.421E+01	.584E-01	.297E+01	.398E+01	.421E+01
.158E+00	.443E+01	.952E+00	.325E+01	.421E+01	.443E+01
.251E+00	.475E+01	.165E+01	.363E+01	.454E+01	.475E+01
.398E+00	.518E+01	.225E+01	.412E+01	.498E+01	.518E+01
.631E+00	.571E+01	.285E+01	.474E+01	.553E+01	.571E+01
.100E+01	.630E+01	.357E+01	.547E+01	.616E+01	.630E+01
.158E+01	.687E+01	.445E+01	.624E+01	.677E+01	.687E+01
.251E+01	.734E+01	.545E+01	.692E+01	.727E+01	.734E+01
.398E+01	.765E+01	.641E+01	.741E+01	.762E+01	.765E+01
.631E+01	.783E+01	.714E+01	.771E+01	.782E+01	.783E+01
.100E+02	.793E+01	.759E+01	.787E+01	.792E+01	.793E+01

TABLE 51. VALUES OF L6 FOR A=8

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.421E+12	.287E+12	.394E+12	.417E+12	.421E+12
.158E-07	.120E+12	.793E+11	.112E+12	.119E+12	.120E+12
.251E-07	.335E+11	.212E+11	.310E+11	.331E+11	.335E+11
.398E-07	.901E+10	.552E+10	.829E+10	.890E+10	.901E+10
.631E-07	.235E+10	.139E+10	.215E+10	.232E+10	.235E+10
.100E-06	.596E+09	.340E+09	.541E+09	.587E+09	.596E+09
.158E-06	.146E+09	.809E+08	.132E+09	.144E+09	.146E+09
.251E-06	.350E+08	.188E+08	.314E+08	.344E+08	.350E+08
.398E-06	.814E+07	.425E+07	.727E+07	.801E+07	.814E+07
.631E-06	.185E+07	.944E+06	.165E+07	.182E+07	.185E+07
.100E-05	.412E+06	.206E+06	.365E+06	.405E+06	.412E+06
.158E-05	.901E+05	.442E+05	.795E+05	.884E+05	.901E+05
.251E-05	.194E+05	.937E+04	.171E+05	.190E+05	.194E+05
.398E-05	.412E+04	.197E+04	.361E+04	.404E+04	.412E+04
.631E-05	.865E+03	.410E+03	.758E+03	.848E+03	.865E+03
.100E-04	.181E+03	.859E+02	.159E+03	.178E+03	.181E+03
.158E-04	.386E+02	.190E+02	.338E+02	.379E+02	.386E+02
.251E-04	.918E+01	.520E+01	.808E+01	.900E+01	.918E+01
.398E-04	.312E+01	.236E+01	.279E+01	.307E+01	.312E+01
.631E-04	.188E+01	.178E+01	.171E+01	.185E+01	.188E+01
.100E-03	.163E+01	.166E+01	.149E+01	.160E+01	.163E+01
.158E-03	.158E+01	.163E+01	.144E+01	.155E+01	.158E+01
.251E-03	.157E+01	.163E+01	.143E+01	.154E+01	.157E+01
.398E-03	.157E+01	.162E+01	.143E+01	.154E+01	.157E+01
.631E-03	.157E+01	.162E+01	.143E+01	.154E+01	.157E+01
.100E-02	.157E+01	.162E+01	.143E+01	.154E+01	.157E+01
.158E-02	.157E+01	.162E+01	.143E+01	.154E+01	.157E+01
.251E-02	.157E+01	.162E+01	.143E+01	.154E+01	.157E+01
.398E-02	.157E+01	.162E+01	.143E+01	.154E+01	.157E+01
.631E-02	.157E+01	.161E+01	.143E+01	.154E+01	.157E+01
.100E-01	.157E+01	.160E+01	.144E+01	.154E+01	.157E+01
.158E-01	.157E+01	.159E+01	.144E+01	.155E+01	.157E+01
.251E-01	.158E+01	.158E+01	.145E+01	.155E+01	.158E+01
.398E-01	.159E+01	.156E+01	.145E+01	.156E+01	.159E+01
.631E-01	.160E+01	.153E+01	.147E+01	.157E+01	.160E+01
.100E+00	.162E+01	.150E+01	.149E+01	.159E+01	.162E+01
.158E+00	.164E+01	.147E+01	.151E+01	.162E+01	.164E+01
.251E+00	.168E+01	.145E+01	.155E+01	.166E+01	.168E+01
.398E+00	.173E+01	.145E+01	.161E+01	.171E+01	.173E+01
.631E+00	.178E+01	.148E+01	.168E+01	.177E+01	.178E+01
.100E+01	.185E+01	.155E+01	.176E+01	.183E+01	.185E+01
.158E+01	.190E+01	.165E+01	.184E+01	.189E+01	.190E+01
.251E+01	.194E+01	.176E+01	.191E+01	.194E+01	.194E+01
.398E+01	.197E+01	.186E+01	.195E+01	.197E+01	.197E+01
.631E+01	.199E+01	.193E+01	.198E+01	.198E+01	.199E+01
.100E+02	.199E+01	.197E+01	.199E+01	.199E+01	.199E+01

TABLE 52. VALUES OF L22 FOR A=8

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.323E+04	.275E+04	.314E+04	.322E+04	.323E+04
.158E-07	.175E+04	.147E+04	.170E+04	.174E+04	.175E+04
.251E-07	.934E+03	.781E+03	.907E+03	.930E+03	.934E+03
.398E-07	.496E+03	.411E+03	.480E+03	.493E+03	.496E+03
.631E-07	.261E+03	.215E+03	.253E+03	.260E+03	.261E+03
.100E-06	.137E+03	.112E+03	.132E+03	.136E+03	.137E+03
.158E-06	.713E+02	.584E+02	.689E+02	.709E+02	.713E+02
.251E-06	.372E+02	.306E+02	.360E+02	.370E+02	.372E+02
.398E-06	.196E+02	.162E+02	.189E+02	.195E+02	.196E+02
.631E-06	.105E+02	.890E+01	.102E+02	.104E+02	.105E+02
.100E-05	.584E+01	.516E+01	.568E+01	.581E+01	.584E+01
.158E-05	.346E+01	.326E+01	.339E+01	.345E+01	.346E+01
.251E-05	.225E+01	.229E+01	.223E+01	.225E+01	.225E+01
.398E-05	.164E+01	.180E+01	.164E+01	.164E+01	.164E+01
.631E-05	.133E+01	.156E+01	.134E+01	.133E+01	.133E+01
.100E-04	.117E+01	.143E+01	.119E+01	.118E+01	.117E+01
.158E-04	.109E+01	.137E+01	.112E+01	.110E+01	.109E+01
.251E-04	.105E+01	.134E+01	.108E+01	.106E+01	.105E+01
.398E-04	.103E+01	.132E+01	.106E+01	.104E+01	.103E+01
.631E-04	.102E+01	.131E+01	.105E+01	.103E+01	.102E+01
.100E-03	.102E+01	.131E+01	.104E+01	.102E+01	.102E+01
.158E-03	.102E+01	.131E+01	.104E+01	.102E+01	.102E+01
.251E-03	.102E+01	.131E+01	.104E+01	.102E+01	.102E+01
.398E-03	.102E+01	.131E+01	.104E+01	.102E+01	.102E+01
.631E-03	.101E+01	.131E+01	.104E+01	.102E+01	.101E+01
.100E-02	.101E+01	.130E+01	.104E+01	.102E+01	.101E+01
.158E-02	.101E+01	.130E+01	.104E+01	.102E+01	.101E+01
.251E-02	.101E+01	.130E+01	.104E+01	.102E+01	.101E+01
.398E-02	.101E+01	.130E+01	.104E+01	.102E+01	.101E+01
.631E-02	.101E+01	.129E+01	.104E+01	.102E+01	.101E+01
.100E-01	.101E+01	.129E+01	.104E+01	.102E+01	.101E+01
.158E-01	.101E+01	.128E+01	.104E+01	.102E+01	.101E+01
.251E-01	.101E+01	.126E+01	.104E+01	.102E+01	.101E+01
.398E-01	.101E+01	.124E+01	.103E+01	.102E+01	.101E+01
.631E-01	.101E+01	.122E+01	.103E+01	.101E+01	.101E+01
.100E+00	.101E+01	.119E+01	.103E+01	.101E+01	.101E+01
.158E+00	.101E+01	.115E+01	.102E+01	.101E+01	.101E+01
.251E+00	.101E+01	.111E+01	.102E+01	.101E+01	.101E+01
.398E+00	.100E+01	.107E+01	.101E+01	.100E+01	.100E+01
.631E+00	.100E+01	.104E+01	.101E+01	.100E+01	.100E+01
.100E+01	.100E+01	.102E+01	.100E+01	.100E+01	.100E+01
.158E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.251E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 53. VALUES OF L2 FOR A=9

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.443E+12	.380E+12	.432E+12	.441E+12	.443E+12
.158E-07	.152E+12	.129E+12	.148E+12	.151E+12	.152E+12
.251E-07	.518E+11	.436E+11	.503E+11	.515E+11	.518E+11
.398E-07	.175E+11	.146E+11	.169E+11	.174E+11	.175E+11
.631E-07	.584E+10	.484E+10	.566E+10	.581E+10	.584E+10
.100E-06	.194E+10	.160E+10	.188E+10	.193E+10	.194E+10
.158E-06	.638E+09	.522E+09	.617E+09	.635E+09	.638E+09
.251E-06	.209E+09	.170E+09	.202E+09	.208E+09	.209E+09
.398E-06	.680E+08	.550E+08	.656E+08	.676E+08	.680E+08
.631E-06	.220E+08	.177E+08	.212E+08	.219E+08	.220E+08
.100E-05	.710E+07	.569E+07	.684E+07	.706E+07	.710E+07
.158E-05	.228E+07	.182E+07	.220E+07	.227E+07	.228E+07
.251E-05	.730E+06	.583E+06	.703E+06	.726E+06	.730E+06
.398E-05	.233E+06	.186E+06	.224E+06	.232E+06	.233E+06
.631E-05	.744E+05	.591E+05	.716E+05	.740E+05	.744E+05
.100E-04	.237E+05	.188E+05	.228E+05	.236E+05	.237E+05
.158E-04	.753E+04	.597E+04	.724E+04	.749E+04	.753E+04
.251E-04	.239E+04	.190E+04	.230E+04	.238E+04	.239E+04
.398E-04	.761E+03	.605E+03	.731E+03	.756E+03	.761E+03
.631E-04	.243E+03	.195E+03	.233E+03	.241E+03	.243E+03
.100E-03	.781E+02	.644E+02	.752E+02	.777E+02	.781E+02
.158E-03	.260E+02	.232E+02	.252E+02	.259E+02	.260E+02
.251E-03	.952E+01	.102E+02	.929E+01	.948E+01	.952E+01
.398E-03	.429E+01	.603E+01	.427E+01	.428E+01	.429E+01
.631E-03	.264E+01	.471E+01	.268E+01	.264E+01	.264E+01
.100E-02	.211E+01	.428E+01	.217E+01	.211E+01	.211E+01
.158E-02	.195E+01	.412E+01	.201E+01	.195E+01	.195E+01
.251E-02	.189E+01	.404E+01	.196E+01	.190E+01	.189E+01
.398E-02	.188E+01	.398E+01	.195E+01	.188E+01	.188E+01
.631E-02	.187E+01	.390E+01	.194E+01	.188E+01	.187E+01
.100E-01	.187E+01	.380E+01	.193E+01	.187E+01	.187E+01
.158E-01	.187E+01	.366E+01	.193E+01	.187E+01	.187E+01
.251E-01	.187E+01	.348E+01	.192E+01	.187E+01	.187E+01
.398E-01	.187E+01	.327E+01	.191E+01	.187E+01	.187E+01
.631E-01	.187E+01	.302E+01	.190E+01	.187E+01	.187E+01
.100E+00	.187E+01	.275E+01	.189E+01	.187E+01	.187E+01
.158E+00	.187E+01	.248E+01	.188E+01	.187E+01	.187E+01
.251E+00	.188E+01	.224E+01	.187E+01	.188E+01	.188E+01
.398E+00	.189E+01	.206E+01	.187E+01	.189E+01	.189E+01
.631E+00	.191E+01	.194E+01	.188E+01	.191E+01	.191E+01
.100E+01	.193E+01	.188E+01	.190E+01	.193E+01	.193E+01
.158E+01	.196E+01	.188E+01	.193E+01	.195E+01	.196E+01
.251E+01	.198E+01	.191E+01	.196E+01	.197E+01	.198E+01
.398E+01	.199E+01	.194E+01	.198E+01	.199E+01	.199E+01
.631E+01	.199E+01	.197E+01	.199E+01	.199E+01	.199E+01
.100E+02	.200E+01	.199E+01	.200E+01	.200E+01	.200E+01

TABLE 54. VALUES OF L4 FOR A=9

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	-.537E+19	-.499E+19	-.534E+19	-.536E+19	-.537E+19
.158E-07	-.126E+19	-.108E+19	-.123E+19	-.125E+19	-.126E+19
.251E-07	-.273E+18	-.221E+18	-.264E+18	-.272E+18	-.273E+18
.398E-07	-.559E+17	-.433E+17	-.537E+17	-.556E+17	-.559E+17
.631E-07	-.110E+17	-.815E+16	-.104E+17	-.109E+17	-.110E+17
.100E-06	-.206E+16	-.149E+16	-.196E+16	-.205E+16	-.206E+16
.158E-06	-.378E+15	-.265E+15	-.356E+15	-.374E+15	-.378E+15
.251E-06	-.673E+14	-.462E+14	-.632E+14	-.666E+14	-.673E+14
.398E-06	-.117E+14	-.791E+13	-.110E+14	-.116E+14	-.117E+14
.631E-06	-.201E+13	-.133E+13	-.188E+13	-.199E+13	-.201E+13
.100E-05	-.339E+12	-.223E+12	-.316E+12	-.336E+12	-.339E+12
.158E-05	-.565E+11	-.367E+11	-.526E+11	-.559E+11	-.565E+11
.251E-05	-.934E+10	-.602E+10	-.867E+10	-.923E+10	-.934E+10
.398E-05	-.153E+10	-.981E+09	-.142E+10	-.151E+10	-.153E+10
.631E-05	-.249E+09	-.159E+09	-.231E+09	-.246E+09	-.249E+09
.100E-04	-.404E+08	-.257E+08	-.374E+08	-.399E+08	-.404E+08
.158E-04	-.652E+07	-.417E+07	-.604E+07	-.644E+07	-.652E+07
.251E-04	-.105E+07	-.680E+06	-.974E+06	-.104E+07	-.105E+07
.398E-04	-.170E+06	-.112E+06	-.158E+06	-.168E+06	-.170E+06
.631E-04	-.276E+05	-.191E+05	-.258E+05	-.273E+05	-.276E+05
.100E-03	-.454E+04	-.341E+04	-.428E+04	-.450E+04	-.454E+04
.158E-03	-.766E+03	-.664E+03	-.735E+03	-.761E+03	-.766E+03
.251E-03	-.133E+03	-.147E+03	-.132E+03	-.133E+03	-.133E+03
.398E-03	-.223E+02	-.397E+02	-.243E+02	-.226E+02	-.223E+02
.631E-03	-.160E+01	-.147E+02	-.335E+01	-.189E+01	-.160E+01
.100E-02	.268E+01	-.808E+01	.117E+01	.242E+01	.268E+01
.158E-02	.368E+01	-.609E+01	.227E+01	.343E+01	.368E+01
.251E-02	.394E+01	-.529E+01	.257E+01	.370E+01	.394E+01
.398E-02	.402E+01	-.477E+01	.267E+01	.378E+01	.402E+01
.631E-02	.405E+01	-.426E+01	.271E+01	.381E+01	.405E+01
.100E-01	.407E+01	-.366E+01	.275E+01	.384E+01	.407E+01
.158E-01	.410E+01	-.295E+01	.279E+01	.387E+01	.410E+01
.251E-01	.415E+01	-.212E+01	.285E+01	.391E+01	.415E+01
.398E-01	.421E+01	-.124E+01	.294E+01	.398E+01	.421E+01
.631E-01	.431E+01	-.354E+00	.307E+01	.408E+01	.431E+01
.100E+00	.446E+01	.467E+00	.326E+01	.424E+01	.446E+01
.158E+00	.468E+01	.118E+01	.352E+01	.446E+01	.468E+01
.251E+00	.498E+01	.180E+01	.388E+01	.478E+01	.498E+01
.398E+00	.539E+01	.238E+01	.436E+01	.520E+01	.539E+01
.631E+00	.589E+01	.299E+01	.496E+01	.572E+01	.589E+01
.100E+01	.645E+01	.373E+01	.566E+01	.631E+01	.645E+01
.158E+01	.698E+01	.463E+01	.639E+01	.688E+01	.698E+01
.251E+01	.741E+01	.562E+01	.702E+01	.734E+01	.741E+01
.398E+01	.769E+01	.654E+01	.747E+01	.766E+01	.769E+01
.631E+01	.785E+01	.723E+01	.775E+01	.784E+01	.785E+01
.100E+02	.793E+01	.763E+01	.789E+01	.793E+01	.793E+01

TABLE 55. VALUES OF L6 FOR A=9

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.300E+11	.186E+11	.277E+11	.297E+11	.300E+11
.158E-07	.752E+10	.454E+10	.692E+10	.743E+10	.752E+10
.251E-07	.183E+10	.107E+10	.168E+10	.181E+10	.183E+10
.398E-07	.434E+09	.248E+09	.395E+09	.428E+09	.434E+09
.631E-07	.100E+09	.560E+08	.909E+08	.989E+08	.100E+09
.100E-06	.227E+08	.124E+08	.205E+08	.223E+08	.227E+08
.158E-06	.501E+07	.269E+07	.451E+07	.494E+07	.501E+07
.251E-06	.109E+07	.576E+06	.979E+06	.107E+07	.109E+07
.398E-06	.233E+06	.122E+06	.209E+06	.230E+06	.233E+06
.631E-06	.494E+05	.255E+05	.441E+05	.485E+05	.494E+05
.100E-05	.103E+05	.528E+04	.921E+04	.102E+05	.103E+05
.158E-05	.214E+04	.109E+04	.191E+04	.211E+04	.214E+04
.251E-05	.442E+03	.224E+03	.394E+03	.435E+03	.442E+03
.398E-05	.917E+02	.469E+02	.816E+02	.902E+02	.917E+02
.631E-05	.200E+02	.107E+02	.178E+02	.196E+02	.200E+02
.100E-04	.532E+01	.340E+01	.477E+01	.523E+01	.532E+01
.158E-04	.235E+01	.191E+01	.213E+01	.231E+01	.235E+01
.251E-04	.175E+01	.160E+01	.160E+01	.172E+01	.175E+01
.398E-04	.163E+01	.154E+01	.149E+01	.160E+01	.163E+01
.631E-04	.160E+01	.153E+01	.147E+01	.158E+01	.160E+01
.100E-03	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.158E-03	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.251E-03	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.398E-03	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.631E-03	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.100E-02	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.158E-02	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.251E-02	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.398E-02	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.631E-02	.160E+01	.152E+01	.146E+01	.157E+01	.160E+01
.100E-01	.160E+01	.151E+01	.147E+01	.158E+01	.160E+01
.158E-01	.161E+01	.151E+01	.147E+01	.158E+01	.161E+01
.251E-01	.161E+01	.150E+01	.147E+01	.158E+01	.161E+01
.398E-01	.162E+01	.148E+01	.148E+01	.159E+01	.162E+01
.631E-01	.163E+01	.147E+01	.150E+01	.160E+01	.163E+01
.100E+00	.165E+01	.145E+01	.151E+01	.162E+01	.165E+01
.158E+00	.167E+01	.144E+01	.154E+01	.165E+01	.167E+01
.251E+00	.170E+01	.143E+01	.158E+01	.168E+01	.170E+01
.398E+00	.175E+01	.145E+01	.164E+01	.173E+01	.175E+01
.631E+00	.180E+01	.149E+01	.171E+01	.179E+01	.180E+01
.100E+01	.186E+01	.157E+01	.178E+01	.185E+01	.186E+01
.158E+01	.191E+01	.167E+01	.186E+01	.190E+01	.191E+01
.251E+01	.195E+01	.178E+01	.192E+01	.194E+01	.195E+01
.398E+01	.197E+01	.187E+01	.196E+01	.197E+01	.197E+01
.631E+01	.199E+01	.194E+01	.198E+01	.199E+01	.199E+01
.100E+02	.199E+01	.197E+01	.199E+01	.199E+01	.199E+01

TABLE 56. VALUES OF L22 FOR A=9

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.569E+03	.477E+03	.553E+03	.567E+03	.569E+03
.158E-07	.297E+03	.248E+03	.288E+03	.296E+03	.297E+03
.251E-07	.154E+03	.128E+03	.149E+03	.153E+03	.154E+03
.398E-07	.797E+02	.662E+02	.773E+02	.794E+02	.797E+02
.631E-07	.413E+02	.344E+02	.400E+02	.411E+02	.413E+02
.100E-06	.216E+02	.181E+02	.209E+02	.215E+02	.216E+02
.158E-06	.115E+02	.979E+01	.111E+02	.114E+02	.115E+02
.251E-06	.631E+01	.557E+01	.615E+01	.628E+01	.631E+01
.398E-06	.369E+01	.343E+01	.362E+01	.368E+01	.369E+01
.631E-06	.236E+01	.235E+01	.234E+01	.236E+01	.236E+01
.100E-05	.169E+01	.181E+01	.169E+01	.169E+01	.169E+01
.158E-05	.136E+01	.153E+01	.136E+01	.136E+01	.136E+01
.251E-05	.118E+01	.139E+01	.120E+01	.119E+01	.118E+01
.398E-05	.110E+01	.132E+01	.112E+01	.110E+01	.110E+01
.631E-05	.106E+01	.129E+01	.107E+01	.106E+01	.106E+01
.100E-04	.103E+01	.127E+01	.105E+01	.104E+01	.103E+01
.158E-04	.102E+01	.126E+01	.104E+01	.103E+01	.102E+01
.251E-04	.102E+01	.126E+01	.104E+01	.102E+01	.102E+01
.398E-04	.101E+01	.126E+01	.104E+01	.102E+01	.101E+01
.631E-04	.101E+01	.125E+01	.103E+01	.102E+01	.101E+01
.100E-03	.101E+01	.125E+01	.103E+01	.102E+01	.101E+01
.158E-03	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.251E-03	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.398E-03	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.631E-03	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.100E-02	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.158E-02	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.251E-02	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.398E-02	.101E+01	.125E+01	.103E+01	.101E+01	.101E+01
.631E-02	.101E+01	.124E+01	.103E+01	.101E+01	.101E+01
.100E-01	.101E+01	.124E+01	.103E+01	.101E+01	.101E+01
.158E-01	.101E+01	.123E+01	.103E+01	.101E+01	.101E+01
.251E-01	.101E+01	.122E+01	.103E+01	.101E+01	.101E+01
.398E-01	.101E+01	.121E+01	.103E+01	.101E+01	.101E+01
.631E-01	.101E+01	.118E+01	.103E+01	.101E+01	.101E+01
.100E+00	.101E+01	.116E+01	.102E+01	.101E+01	.101E+01
.158E+00	.101E+01	.113E+01	.102E+01	.101E+01	.101E+01
.251E+00	.101E+01	.109E+01	.101E+01	.101E+01	.101E+01
.398E+00	.100E+01	.106E+01	.101E+01	.100E+01	.100E+01
.631E+00	.100E+01	.104E+01	.101E+01	.100E+01	.100E+01
.100E+01	.100E+01	.102E+01	.100E+01	.100E+01	.100E+01
.158E+01	.100E+01	.101E+01	.100E+01	.100E+01	.100E+01
.251E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.398E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.631E+01	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01
.100E+02	.100E+01	.100E+01	.100E+01	.100E+01	.100E+01

TABLE 57. VALUES OF L2 FOR A=1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.808E+11	.681E+11	.786E+11	.804E+11	.808E+11
.158E-07	.267E+11	.224E+11	.260E+11	.266E+11	.267E+11
.251E-07	.879E+10	.732E+10	.853E+10	.875E+10	.879E+10
.398E-07	.287E+10	.238E+10	.278E+10	.286E+10	.287E+10
.631E-07	.933E+09	.770E+09	.904E+09	.928E+09	.933E+09
.100E-06	.302E+09	.248E+09	.292E+09	.300E+09	.302E+09
.158E-06	.971E+08	.796E+08	.940E+08	.966E+08	.971E+08
.251E-06	.312E+08	.255E+08	.301E+08	.310E+08	.312E+08
.398E-06	.997E+07	.814E+07	.964E+07	.992E+07	.997E+07
.631E-06	.318E+07	.259E+07	.308E+07	.317E+07	.318E+07
.100E-05	.101E+07	.825E+06	.981E+06	.101E+07	.101E+07
.158E-05	.323E+06	.262E+06	.312E+06	.321E+06	.323E+06
.251E-05	.103E+06	.833E+05	.991E+05	.102E+06	.103E+06
.398E-05	.326E+05	.264E+05	.315E+05	.324E+05	.326E+05
.631E-05	.103E+05	.838E+04	.998E+04	.103E+05	.103E+05
.100E-04	.328E+04	.266E+04	.317E+04	.326E+04	.328E+04
.158E-04	.104E+04	.844E+03	.100E+04	.104E+04	.104E+04
.251E-04	.331E+03	.270E+03	.320E+03	.329E+03	.331E+03
.398E-04	.106E+03	.878E+02	.102E+03	.105E+03	.106E+03
.631E-04	.348E+02	.302E+02	.337E+02	.347E+02	.348E+02
.100E-03	.123E+02	.120E+02	.120E+02	.123E+02	.123E+02
.158E-03	.517E+01	.619E+01	.510E+01	.516E+01	.517E+01
.251E-03	.291E+01	.436E+01	.292E+01	.291E+01	.291E+01
.398E-03	.220E+01	.378E+01	.223E+01	.220E+01	.220E+01
.631E-03	.197E+01	.359E+01	.201E+01	.197E+01	.197E+01
.100E-02	.190E+01	.352E+01	.194E+01	.190E+01	.190E+01
.158E-02	.188E+01	.349E+01	.192E+01	.188E+01	.188E+01
.251E-02	.187E+01	.346E+01	.191E+01	.187E+01	.187E+01
.398E-02	.187E+01	.343E+01	.191E+01	.187E+01	.187E+01
.631E-02	.187E+01	.338E+01	.191E+01	.187E+01	.187E+01
.100E-01	.187E+01	.332E+01	.191E+01	.187E+01	.187E+01
.158E-01	.187E+01	.323E+01	.190E+01	.187E+01	.187E+01
.251E-01	.187E+01	.310E+01	.190E+01	.187E+01	.187E+01
.398E-01	.187E+01	.295E+01	.189E+01	.187E+01	.187E+01
.631E-01	.187E+01	.276E+01	.189E+01	.187E+01	.187E+01
.100E+00	.187E+01	.256E+01	.188E+01	.187E+01	.187E+01
.158E+00	.188E+01	.235E+01	.187E+01	.187E+01	.188E+01
.251E+00	.189E+01	.216E+01	.187E+01	.188E+01	.189E+01
.398E+00	.190E+01	.201E+01	.187E+01	.189E+01	.190E+01
.631E+00	.192E+01	.192E+01	.189E+01	.191E+01	.192E+01
.100E+01	.194E+01	.188E+01	.191E+01	.193E+01	.194E+01
.158E+01	.196E+01	.188E+01	.194E+01	.196E+01	.196E+01
.251E+01	.198E+01	.191E+01	.196E+01	.198E+01	.198E+01
.398E+01	.199E+01	.195E+01	.198E+01	.199E+01	.199E+01
.631E+01	.199E+01	.197E+01	.199E+01	.199E+01	.199E+01
.100E+02	.200E+01	.199E+01	.200E+01	.200E+01	.200E+01

TABLE 58. VALUES OF L4 FOR A=1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	-.927E+18	-.705E+18	-.888E+18	-.921E+18	-.927E+18
.158E-07	-.173E+18	-.128E+18	-.165E+18	-.172E+18	-.173E+18
.251E-07	-.313E+17	-.227E+17	-.297E+17	-.311E+17	-.313E+17
.398E-07	-.554E+16	-.394E+16	-.524E+16	-.550E+16	-.554E+16
.631E-07	-.961E+15	-.672E+15	-.906E+15	-.953E+15	-.961E+15
.100E-06	-.164E+15	-.113E+15	-.154E+15	-.162E+15	-.164E+15
.158E-06	-.275E+14	-.188E+14	-.259E+14	-.273E+14	-.275E+14
.251E-06	-.458E+13	-.310E+13	-.429E+13	-.453E+13	-.458E+13
.398E-06	-.753E+12	-.507E+12	-.705E+12	-.746E+12	-.753E+12
.631E-06	-.123E+12	-.823E+11	-.115E+12	-.122E+12	-.123E+12
.100E-05	-.200E+11	-.133E+11	-.187E+11	-.198E+11	-.200E+11
.158E-05	-.323E+10	-.215E+10	-.302E+10	-.320E+10	-.323E+10
.251E-05	-.521E+09	-.345E+09	-.486E+09	-.515E+09	-.521E+09
.398E-05	-.836E+08	-.554E+08	-.781E+08	-.828E+08	-.836E+08
.631E-05	-.134E+08	-.889E+07	-.125E+08	-.133E+08	-.134E+08
.100E-04	-.215E+07	-.143E+07	-.201E+07	-.213E+07	-.215E+07
.158E-04	-.344E+06	-.232E+06	-.322E+06	-.341E+06	-.344E+06
.251E-04	-.554E+05	-.384E+05	-.520E+05	-.549E+05	-.554E+05
.398E-04	-.901E+04	-.655E+04	-.849E+04	-.893E+04	-.901E+04
.631E-04	-.149E+04	-.118E+04	-.142E+04	-.148E+04	-.149E+04
.100E-03	-.252E+03	-.235E+03	-.245E+03	-.251E+03	-.252E+03
.158E-03	-.425E+02	-.538E+02	-.435E+02	-.426E+02	-.425E+02
.251E-03	-.506E+01	-.155E+02	-.663E+01	-.532E+01	-.506E+01
.398E-03	.219E+01	-.639E+01	.753E+00	.194E+01	.219E+01
.631E-03	.375E+01	-.396E+01	.241E+01	.351E+01	.375E+01
.100E-02	.413E+01	-.323E+01	.283E+01	.390E+01	.413E+01
.158E-02	.423E+01	-.295E+01	.295E+01	.400E+01	.423E+01
.251E-02	.427E+01	-.277E+01	.299E+01	.404E+01	.427E+01
.398E-02	.428E+01	-.258E+01	.301E+01	.405E+01	.428E+01
.631E-02	.430E+01	-.233E+01	.302E+01	.407E+01	.430E+01
.100E-01	.431E+01	-.201E+01	.305E+01	.408E+01	.431E+01
.158E-01	.434E+01	-.159E+01	.308E+01	.411E+01	.434E+01
.251E-01	.438E+01	-.107E+01	.314E+01	.415E+01	.438E+01
.398E-01	.444E+01	-.474E+00	.322E+01	.422E+01	.444E+01
.631E-01	.454E+01	.163E+00	.333E+01	.431E+01	.454E+01
.100E+00	.468E+01	.796E+00	.351E+01	.446E+01	.468E+01
.158E+00	.488E+01	.139E+01	.376E+01	.468E+01	.488E+01
.251E+00	.518E+01	.195E+01	.410E+01	.498E+01	.518E+01
.398E+00	.557E+01	.251E+01	.456E+01	.539E+01	.557E+01
.631E+00	.605E+01	.313E+01	.515E+01	.589E+01	.605E+01
.100E+01	.657E+01	.389E+01	.582E+01	.644E+01	.657E+01
.158E+01	.707E+01	.479E+01	.651E+01	.698E+01	.707E+01
.251E+01	.746E+01	.577E+01	.711E+01	.740E+01	.746E+01
.398E+01	.772E+01	.666E+01	.752E+01	.769E+01	.772E+01
.631E+01	.787E+01	.730E+01	.777E+01	.785E+01	.787E+01
.100E+02	.794E+01	.767E+01	.790E+01	.793E+01	.794E+01

TABLE 59. VALUES OF L6 FOR A=1

GAMMA	ALPHAo= 0	.25	.5	.75	1
.100E-07	.123E+10	.724E+09	.113E+10	.121E+10	.123E+10
.158E-07	.276E+09	.160E+09	.252E+09	.272E+09	.276E+09
.251E-07	.607E+08	.346E+08	.553E+08	.598E+08	.607E+08
.398E-07	.131E+08	.738E+07	.119E+08	.129E+08	.131E+08
.631E-07	.280E+07	.156E+07	.254E+07	.276E+07	.280E+07
.100E-06	.589E+06	.325E+06	.534E+06	.581E+06	.589E+06
.158E-06	.123E+06	.672E+05	.111E+06	.121E+06	.123E+06
.251E-06	.254E+05	.138E+05	.230E+05	.250E+05	.254E+05
.398E-06	.522E+04	.282E+04	.471E+04	.514E+04	.522E+04
.631E-06	.107E+04	.575E+03	.963E+03	.105E+04	.107E+04
.100E-05	.218E+03	.118E+03	.197E+03	.215E+03	.218E+03
.158E-05	.455E+02	.249E+02	.411E+02	.448E+02	.455E+02
.251E-05	.105E+02	.620E+01	.948E+01	.103E+02	.105E+02
.398E-05	.341E+01	.242E+01	.310E+01	.336E+01	.341E+01
.631E-05	.198E+01	.166E+01	.181E+01	.195E+01	.198E+01
.100E-04	.170E+01	.150E+01	.155E+01	.167E+01	.170E+01
.158E-04	.164E+01	.147E+01	.150E+01	.161E+01	.164E+01
.251E-04	.163E+01	.146E+01	.149E+01	.160E+01	.163E+01
.398E-04	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.631E-04	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.100E-03	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.158E-03	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.251E-03	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.398E-03	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.631E-03	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.100E-02	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.158E-02	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.251E-02	.162E+01	.146E+01	.149E+01	.160E+01	.162E+01
.398E-02	.163E+01	.146E+01	.149E+01	.160E+01	.163E+01
.631E-02	.163E+01	.146E+01	.149E+01	.160E+01	.163E+01
.100E-01	.163E+01	.146E+01	.149E+01	.160E+01	.163E+01
.158E-01	.163E+01	.145E+01	.150E+01	.161E+01	.163E+01
.251E-01	.164E+01	.145E+01	.150E+01	.161E+01	.164E+01
.398E-01	.164E+01	.144E+01	.151E+01	.162E+01	.164E+01
.631E-01	.165E+01	.143E+01	.152E+01	.163E+01	.165E+01
.100E+00	.167E+01	.142E+01	.154E+01	.165E+01	.167E+01
.158E+00	.169E+01	.142E+01	.157E+01	.167E+01	.169E+01
.251E+00	.173E+01	.143E+01	.161E+01	.170E+01	.173E+01
.398E+00	.177E+01	.145E+01	.166E+01	.175E+01	.177E+01
.631E+00	.182E+01	.151E+01	.173E+01	.180E+01	.182E+01
.100E+01	.187E+01	.159E+01	.180E+01	.186E+01	.187E+01
.158E+01	.192E+01	.169E+01	.187E+01	.191E+01	.192E+01
.251E+01	.195E+01	.180E+01	.192E+01	.195E+01	.195E+01
.398E+01	.198E+01	.188E+01	.196E+01	.197E+01	.198E+01
.631E+01	.199E+01	.194E+01	.198E+01	.199E+01	.199E+01
.100E+02	.200E+01	.197E+01	.199E+01	.199E+01	.200E+01

TABLE **60**. VALUES OF L22 FOR A=1

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